APR 26 1935

The OIL AND GAS JOURNAL

40

RODUCING

EFINING

ATURAL
ASOLINE

IPELINE

ARKETING

means "KEEP OUT" to friction, wear and waste

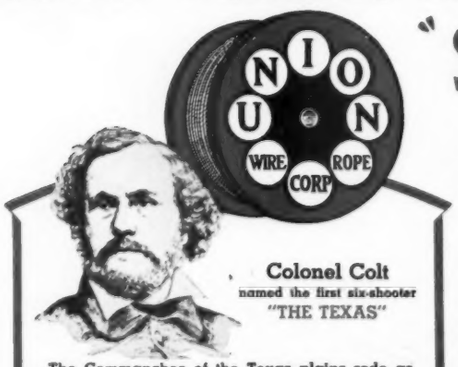
THERE is no room for these enemies of dependability, economy and long life in modern rig fronts, rotaries, hoists, gas and steam engines, pumping equipment, swivels, crown blocks and other types of oil field machinery equipped with Timken Tapered Roller Bearings. Because Timken Bearings give you advantages you cannot get in any other way, one of your most important questions when buying new oil field equipment of any type is: "Is It Timken Bearing Equipped?"

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN TAPERED ROLLER BEARINGS

TEXAS PIONEERED THE "SIX SHOOTER"

Now Texans tell us UNIONS are "Six Shootin'" Wire Lines



Colonel Colt
named the first six-shooter
"THE TEXAS"

The Commanches of the Texas plains rode as though they were part of their horses and shot their arrows with deadly accuracy. Not until the six-shooter was invented were the Rangers able to whip them in a running fight. The first Colt Six-Shooters were brought by S. M. Swenson, a cattleman, to President Houston, who gave them to the Rangers. The mystified indians declared that each Ranger had a shot for every finger on his hand. For some time Texas was the only place where six-shooters were used.

Texas is a "six-barrelled" state in more ways than one, so it is not surprising that she pioneered the "six-shooter." Nor is it surprising that Texas oil men appreciate UNION Wire Lines—lines designed, as was the six-shooter, to improve on older equipment, do extra duty, and win against odds. Designed by oil men for oil field service, UNION Lines are built extra strong and tough. Today they are leaders in every Texas field.

This picture was taken at the Panhandle's deepest well—in Moore County—8012 feet—Lee Drilling Company, Contractors—UNION Lines used exclusively. The men are: Top row, left to right: Dave Davis, Tool Pusher; W. B. Hasenfuss, Union Wire Rope Corp.; D. E. McMahon, E. L. Adams, Wayne Walton, J. W. Mundy, C. B. Yowell, E. C. Bode, L. L. Rains, Geo. Coker, Driller; Curley Griggs, Driller; D. C. Benton, Driller. Bottom row: J. R. Pettygrove, I. J. Hendrix, Bob Lemaster, Clayton Hamm, Frank Rylant, Mike Hines, S. D. Drake, Jarecki Mfg. Co.; J. W. Markee, Farm Boss, Phillips Petroleum Co.

UNION WIRE ROPE CORPORATION

Executive and Sales Offices: 601 Beacon Life Bldg., Tulsa, Okla.

Factory and General Office: Kansas City, Mo. Branch: Portland, Ore. Warehouse: Monahans, Texas

JARECKI MFG. CO.
Midcontinent and Eastern Fields

MARION MACHINE FOUNDRY & SUPPLY CO.
Rocky Mountain Fields

E. O. CHAPA, Representative for Mexico
P. O. Box 604, Tampico, Tamps, Mexico
Stocks at Tampico, Tamps, Mexico

LUCEY EXPORT CORP.
Exclusive Export Agents
Woolworth Bldg., New York
Broad Street House, London

UNION WIRE LINES

The "ULTIMATE LOW COST WIRE ROPE"

THE OIL AND GAS JOURNAL

Volume 33
Number 49

April 25, 1935

SUBSCRIPTION RATES: Domestic, 1 year, $6; 6 months, $3. Canadian and foreign, 1 year, $7; 6 months, $3.50. All subscriptions payable in advance. When extra copies of special issues are available they are reserved for subscribers' needs and may be bought by subscribers at 50 cents each

SPECIAL ARTICLES

Summary of Situation ---- 7
By JAMES McINTYRE
The Bulletin Board ---- 8
Hard Boiled Regimentation (Cartoon) 9
Changing Opinion in Congress on N.R.A. ---- 10
By HUGH D. MALLON
Lease and Agency Contract Upheld -- 10
N.P.A. Meeting ---- 11
By R. C. CONINE
Death of Underwood Nazro ---- 11
Pacific Coast Agency Plans ---- 12
By L. P. STOCKMAN
Drastic Truck Regulation Bill ---- 12
Heat of Solution ---- 13
By E. NEYMAN and S. PILAT
Administrator's Report on Stocks --- 14
New East Texas Gasoline Plant ---- 15
By GEORGE WEBER
Champlin May Connect to Phillips Line 16
By W. T. ZIEGENHAIN
East Texas in Better Shape ---- 16
By L. E. BREDBERG
Difficult Pipe Laying on Gulf ---- 17
By NEIL WILLIAMS
Corrosion and Production Equipment-- 18
By W. ST. M. E. CRAKE
Editorial "Ain't Seen Nothin' Yet" --- 22
Foreign Page ---- 25
Esso Stations in St. Louis ---- 32
Pipe Line Construction News ---- 32
Magnetic Prospecting ---- 33
By W. P. JENNY
Sidetracking on Gulf Coast ---- 36
By NEIL WILLIAMS
Bayway Power Plant Enlargement --- 37
By C. O. WILLSON
Portable Drilling Units in Kansas --- 39
Map of Kansas Fields ----42-43
Kansas Production Problems ---- 44
Limestone Reservoir Rocks in Kansas 53
By C. E. CLASON and JOHN G. STAUDT
Kansas Pipe Line Systems ---- 57
Service on New Kansas Fields ----60 to 75
List of Kansas Oil Fields ---- 78
Commodity Exchange ---- 92
Field Problems From Readers ----118
Edited by T. F SMILEY

FIELD OPERATIONS

Late Field Page ---- 32
N. Louisiana-Arkansas, Mississippi --- 88
By J. R. CRUMPTON
Southwest Texas ---- 89
West and North Texas ---- 90
By L. E. BREDBERG
East Texas ---- 91
By L. E. BREDBERG
Gulf Coast ----97-98
By F. L. SINGLETON
Central West ---- 99
By GEORGE A. WHITNEY
Eastern Fields ----100
By STAFF CORRESPONDENT
Oklahoma ----101
By JAMES McINTYRE
Michigan ----104
By PAUL A. ELLIOTT
Kansas ----105
By JAMES McINTYRE
California ----107
By L. P. STOCKMAN
Rocky Mountain Area ----109
By TOLBERT R. INGRAM
Canada ----109
By VICTOR LAURISTON

REFINING AND MARKETING

Group 3 Market ---- 26
By T. F. SMILEY
New York Market ---- 27
By C. O. WILLSON
A.P.I. Refinery Report ---- 27
Refinery and Crude Oil Prices ----28-29
Tank Wagon Markets ---- 30
News for Sales Departments ---- 31
Chicago Market ---- 81
News for Petroleum Refiners ---- 83
Natural Gasoline Manufacture ---- 84
Technical Questions Answered ----113
By C. K. FRANCIS, Ph.D.

GENERAL DEPARTMENTS

Monthly Field Summary ----114
Do You Remember? ----116
Personal Paragraphs ----116-117
Natural Gas Developments ----119
Record of Oil Securities ----120
New Equipment ----125
Classified Advertising ----126-127
Index to Advertisers ----128

Refinery Section Starts on Page 26

OIL MAN'S CALENDAR

April

18-19—Cleveland, Ohio, National Petroleum Association, semiannual meeting, Hotel Cleveland.

22—New York, American Chemical Society, semiannual meeting.

25-26—San Antonio, Tex., American Petroleum Institute Southwestern Production Division, Plaza Hotel, spring meeting.

May

1-3—Tulsa, Natural Gasoline Association of America, Hotel Tulsa.

6-9—Memphis, Tenn., Natural Gas Department, A.G.A., Peabody Hotel.

8-11—Tulsa, Oil and Gas Power Division of A.S.M.E., Mayo Hotel.

14-16—Tulsa, American Petroleum Institute, fifth mid-year meeting, Mayo Hotel.

14-16—Wilmington, Del., American Institute of Chemical Engineers, semiannual meeting.

June

20-21—State College, Pa., Pennsylvania Grade Crude Oil Association, annual meeting.

24-28—Detroit, Mich., American Society for Testing Materials, annual meeting, Book Cadillac Hotel.

August

?—American Petroleum Equipment Suppliers Association, place to be named later.

September

18-20—Hot Springs, Ark., North American Gasoline Tax Conference.

25-27—Atlantic City, N. J., National Petroleum Association, annual meeting, Hotel Traymore.

November

4-5—Dallas, Tex., I.P.A.A., annual convention.

11-14—Los Angeles, Calif., American Petroleum Institute, sixteenth annual meeting, Biltmore Hotel.

December

(?)—Dallas, Tex., Mid-Continent Oil and Gas Association.

Branch Editorial Offices

WASHINGTON	CHICAGO	DENVER	FORT WORTH	HOUSTON	LOS ANGELES	PITTSBURGH
Hugh D. Mallon 808 Investment Bldg.	616 S. Michigan Ave.	Tolbert R. Ingram State Office Bldg.	L. E. Bredberg Petroleum Bldg.	Neil Williams 809-10 Sterling Bldg.	L. P. Stockman Union Oil Bldg.	P. O. Box 1344

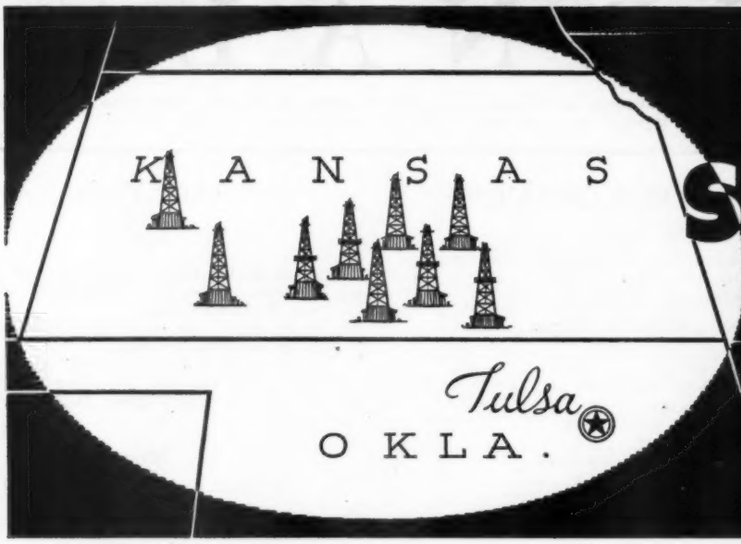
MUSKEGON	LOUISIANA	TOLEDO	NEW YORK	OIL CITY	CHATHAM, ONT.
Paul A. Elliott Chronicle Bldg.	J. R. Crumpton Minden	George A. Whitney Box 98, Main P. O.	C. O. Willson 415 Lexington Ave.	R. C. Conine Oil City Derrick	Victor Lauriston 35 Stanley Ave.

Branch Advertising Offices

NEW YORK	CLEVELAND	CHICAGO	LOS ANGELES	HOUSTON
C. L. Cain 415 Lexington Ave.	Howard Markt 802 Leader Bldg.	C. R. Farmer 616 S. Michigan Ave.	J. H. Tinkham 1406 S. Grand Ave.	Paul T. Putnam 809-10 Sterling Bldg.

Copyright, 1935, by The Petroleum Publishing Co.

KANSAS



IS IN THE SPOTLIGHT *today..*

The Quest for Oil goes on!

Wherever you find activity in leasing and drilling there also are you sure to find real experts in their respective chosen jobs—and in nearly every new field you will find Tulsa men representing established and successful Tulsa companies.

We believe that the oil fraternity recognizes the important part Tulsa men and Tulsa capital have played in the development of nearly every new oil pool. Frankly, we are proud of the fact that we have been privileged to play a part in many of the more important developments since this bank was established in 1895.

Due to the fact that the entire Mid-Continent Oil Area has been developed during the years of service rendered by this bank it is but natural that our directorate should be representative of the interests we serve. We are "oil minded" bankers and always welcome an opportunity to discuss oil financing with individuals and company officials whose properties are located anywhere in the Mid-Continent Area.

Stars of The Metropolitan
and John B. Kennedy
Each Monday Evening—6:30—KVOO.

DIRECTORS

M. M. DOAN, *Oil Investments*
F. L. DUNN, *Executive Vice President*
A. L. FARMER, *Farmer and Duran, Investments*
H. N. GREIS, *Oil Producer*
JOHN D. MAYO, *Mayo's Incorporated*
R. OTIS McCLINTOCK, *President*
F. B. PARRIOTT, *Oil Investments*
WAITE PHILLIPS, *Investments*
W. G. SKELLY, *President, Skelly Oil Company*

THE OIL BANK OF TULSA

THE FIRST NATIONAL BANK and TRUST COMPANY
TULSA, OKLAHOMA

Production Remains High But Extended Wildcat Operations Fail to Find Important New Pools

By JAMES McINTYRE

IN the past week crude oil production over the United States came within 3,130 barrels of establishing a new peak in the daily average recovery for this year. The higher rate reflects the increased activities in practically all fields outside of East Texas but because there has been no important new pool discovered this relatively high rate is not considered a serious handicap in maintaining a balance between supply and demand.

Among the major oil states, Oklahoma recorded the highest concentration of new production for the number of wells completed. The greater activities within the South Burbank, Crescent, Fitts, Polo and Greater Seminole pools pushed the total oil recovery of the state to an average of 537,125 barrels daily, the highest output since July 11, 1934. Throughout the state 43 new operations were started in the past week and of the 37 completions, 24 came in as producers and 13 were dry holes.

Along the Gulf Coast the Humble Oil & Refining Co. established a new record for deep production in Texas when it started taking oil from its No. 1 Danielson in the Dickinson Field of Galveston County. This well was originally drilled to 9,360 feet but this week was plugged back to the sand at 9,140 feet and has been producing an average of 31 barrels daily through a one-quarter-inch choke under a tubing pressure of 1,250 pounds and a casing pressure of 1,850 pounds.

Michigan continues to hold the interest of producers in the central states and 20 locations were made in the new Crystal Pool of the Montcalm Field. At least 10 more will be spudded in before the end of the month all because of the favorable showing of the discovery well which has increased its flow to 3,747 barrels daily with the tools still lodged in the hole. Drilling in the California fields is running 10 per cent greater than the average for 1934. At the present time 213 strings of tools are in the field and completions are being made at better than a normal rate but no important new pools have appeared.

Kansas has also reported extended drilling operations but the total production of the state remains unchanged with the increased output in the Russell County Pool equalizing the losses in the Burrton-Haury Pool.

Twelve completions in the North Louisiana fields reflect the improved local market for oil there.

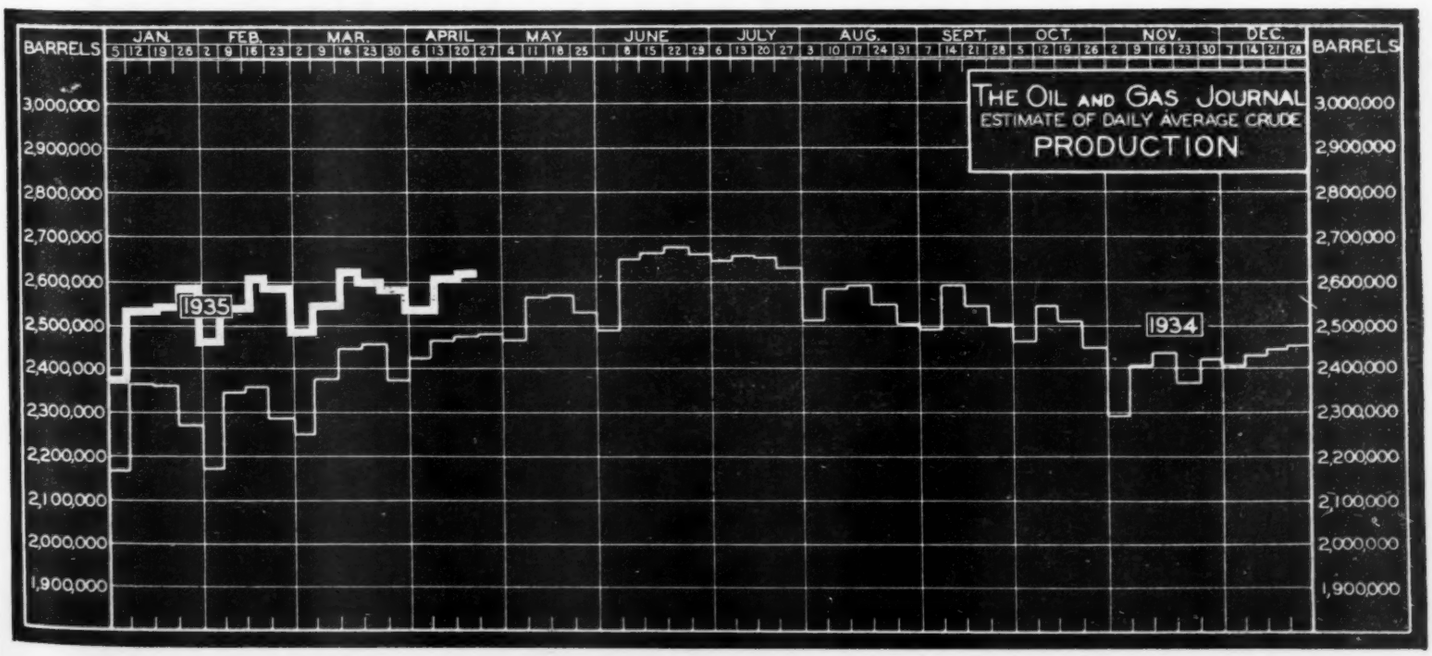
Attention in the Southwest Texas fields was again focused upon the West Tuleta area where Dirks Brothers' No. 1 extended the original pool one-half mile southward.

Crude Oil Production in the United States

Estimated daily average production for the week ending April 20, a comparison with previous week and the federal allowables follow:

		Federal allowable	
	Apr. 20	April	Apr. 13
Oklahoma—			
Oklahoma City	176,325	.....	179,550
Seminole-St. Louis	102,450	.....	102,475
Remainder of State	258,350	.....	247,825
Total Oklahoma	537,125	493,300	529,850
East Texas—			
Lathrop	158,926	.....	159,610
Kilgore	153,325	.....	155,307
Joiner	155,278	.....	153,534
Total East Texas	467,529	.....	468,451
West Texas	145,536	.....	144,970
North Central Texas	90,624	.....	88,487
Texas Panhandle	54,349	.....	55,683
East Central Texas	50,065	.....	49,773
Gulf Coast—Texas	180,738	.....	179,184
Southwest Texas	60,834	.....	61,453
Total State of Texas	1,049,675	1,021,000	1,048,001
Kansas	146,523	141,000	144,025
North Louisiana	22,985	.....	22,960
Gulf Coast—Louisiana	100,038	.....	100,210
Total Louisiana	123,023	111,000	123,170
Arkansas	30,205	30,700	30,375
Eastern Fields (except Michigan)	106,500	106,900	106,000
Michigan	39,023	32,700	37,850
Rocky Mountain area	103,330	97,400	98,540
California—			
Santa Fe Springs	36,500	.....	40,500
Long Beach	68,000	.....	71,000
Mountain View	8,100	.....	10,400
Elwood	8,500	.....	11,500
Kettleman Hills	55,500	.....	52,000
Remainder of State	309,650	.....	311,600
Total California	486,250	493,300	497,000
Total United States	2,621,654	2,527,300	2,614,811

Increase, 6,843 Bbls. Daily.



The Bulletin Board

Natural Gasoline Association of America will have an exceptionally large attendance at the annual convention in Tulsa May 1 to 3, is indicated by replies to more than 1,000 special invitations sent to refiners, natural gasoline company executives and operators. The symposium on motor fuel volatility in which representatives from the automotive, refining and natural gasoline industries will take part promises to be the feature.

•

Corrosion: Its nature and effect on the selection and installation of production equipment was analyzed by a petroleum engineer before San Antonio, Texas division of A.P.I. production division.

•

New Compression and rectification natural gasoline plant of the Sabine Valley Gasoline Co., Inc. will begin operating May 1. It will serve about 1,000 wells in the East Texas field.

•

Changing Opinion In Congress on N. R. A. legislation may force compromise holding danger to the oil industry. Mystery surrounding status of Van Fleet in East Texas district.

•

Eighty Miles of pipe have been completed as part of the 250-mile 6-inch gasoline line being laid by the Cimarron Valley Pipe Line Co. from Enid, Okla. to Superior, Nebr. Four construction crews are at work. Consideration has been given to providing for connection with the Phillips Petroleum Co.'s gasoline pipe line system at Wichita, Kansas.

•

Limestone Reservoirs in Kansas have been found to respond very satisfactorily to acid treatment but the proper technique is required in this work or damage may accrue to the wells. This article deals with the proper technique.

•

Truck and Bus Regulation embodied in Eastman bill passed by U. S. Senate without dissenting vote is described as discriminatory menace against highway transportation and threatens an oil industry market.

•

Wells in Kansas lend themselves nicely to the use of pumping units for the production of fluid at the end of the period of natural flow. Large quantities of salt water accompanying the oil make the pumping duties severe in this state.

•

Sidetracking As Now Applied to numerous problems encountered in drilling or repairing oil wells in the Gulf Coast district, has made an appreciable savings in producing oil in this region.

Pacific Coast Petroleum Agency members are signing a supplemental agreement for posting of $10,000 bond and designating a judicial committee to assess fines for violations until June 15. Agency modified may be continued.

•

National Petroleum Association meeting at Cleveland, O., chiefly concerned about governmental extravagance and uneconomic marketing prices, including the high cost of retailing gasoline, criticized by President C. L. Suhr.

•

Magnetic Difference exists in sufficient quantity in sedimentary columns in the oil provinces to produce noticeable anomalies above structures of commercial interest. This knowledge widens the scope for use of magnetometers in geophysical work in the petroleum industry.

•

Lease and Agency Contracts found entirely within the law by Federal Trade Commission which also approves lease and license agreements within certain limitations pending further investigation if Petroleum Administration will pay the cost of inquiry.

•

Pipe Line Construction on the Gulf Coast encounters a diversity of difficult and unusual conditions which tax the ingenuity of pipeline companies which have been forced to various expediencies of exceptional interest.

•

Heat of Solution of natural gas in heavier petroleum fractions was found to be negligible as compared to the attendant heat of compression. Accurate calorimetric measurements were performed using methane and natural gas.

•

Esso Products Entered St. Louis this week when the Standard Oil Co. of New Jersey announced the opening of three new filling stations there. The entrance of the New Jersey company into Standard of Indiana marketing territory caused considerable discussion and was predicted to be the beginning of a marketing expansion program throughout the Middle West.

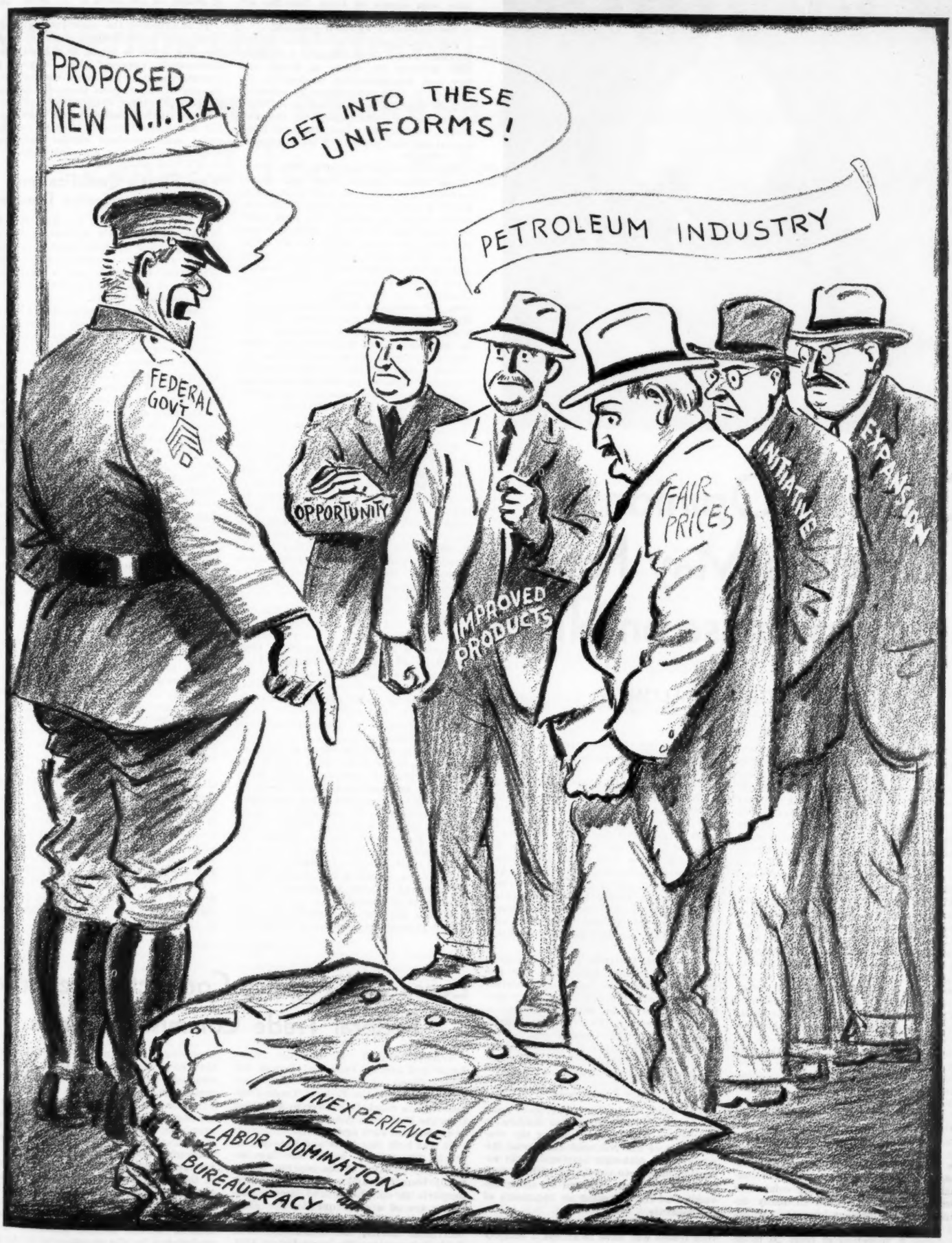
•

Kansas Wildcats are drilled quickly and cheaply with portable rotary drilling units which have been developed in recent years to meet conditions such as exist there. General discussion of drilling practice in Kansas follows.

•

East Texas is reported in better shape. Products shipments continue to decline. Railroad Commission to check all "dead" wells. Survey of open storage has been completed. Railroad claims "abandoned" oil on which it seeks to collect demurrage.

Hardboiled Regimentation



—Drawn Exclusively for The Oil and Gas Journal.

Changing Opinion in Congress May Force Compromise on NRA

By HUGH D. MALLON
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Apr. 22.—The next 10 days will probably decide several questions of prime importance to the oil industry along the lines of federal legislation. Of primary importance is the Thomas oil control bill, but of almost equal importance is the Wheeler-Rayburn utility holding company bill, the National Industrial Recovery Act and the Wagner labor relations bill, some of which may be reported out of the various committees in that time.

The Thomas bill is expected to be reported out of the Senate committee on mines and mining, probably in an amended form, within the week. What form these amendments may take is problematical. It is expected the President will divulge, at least to the members of the subcommittee considering the bill, what he desires in the form of oil legislation.

The Wheeler-Rayburn bill, now being redrawn in executive session by the committee, will probably be reported to the House of Representatives within the next two weeks. As originally drawn it provided for the elimination of all holding companies by 1940, and strict regulation and supervision of the natural gas industry immediately on its enactment.

From the evidence at the hearing before the House committee on interstate and foreign commerce it was apparent the industry is opposed to such regulation, while at the same time it was conclusively shown that holding companies were the primary reason in many instances for the present low rate for gas and electricity in the homes at the present time. A reduction of from 20 to 45 per cent in rates has been shown to have resulted from affiliation with holding companies by small concerns, serving only the neighborhood in which the local utility was located.

Vigorous opposition by practically all utility companies, coupled with the pleas of countless investors in the utility field, are believed to have assured the enactment of a strictly regulatory measure in place of the drastic and destructive bill proposed in the first place. The opinion of numerous congressmen is that the bill, when reported out of the committee, will be regulatory rather than confiscatory. They point to the evidence introduced into the record, as well as to their own opinions that the bill will be completely revised.

Opinion in Congress has undergone a considerable change during the past few weeks, and it is not believed by several observers here the bill could be passed in its original form, but that a compromise is necessary. They say the administration, rather than risk defeat on the floor, will recommend to the committee certain amendments which will completely alter the original concept of the bill.

NRA Compromise?

The same kind of a compromise may be forced on administration leaders in the Senate who are considering the continuation of the National Industrial Recovery Act. Although hearings on its extension have been concluded nothing definite has yet been advanced by either advocates of its extension or opponents of the measure.

Opinion generally is that administration forces will have to accept a compromise with the more conservative members of both the Senate and the House of Representatives. Senators Borah and Nye have both been bitter in their denunciation of the operation of the present recovery act. Numerous instances have been shown by them that the act as written and administered has resulted in the oppression of small business.

The result may be a coalition of the opposing forces in the Senate, a compromise between the forces of Borah and Nye and administration leaders in the Senate. If this compromise is effected, and the new bill is patterned on the composite picture laid down by the two groups, industry may look for strict labor regulations and practically no safeguards for industry.

The Nye-Borah conception of a recovery act is that the antitrust laws should be restored in full force and effect, which would result in the outlawing of any concerted effort by industry to push aside the depression. It would declare illegal any such agreement within the oil industry as the Pacific Coast Petroleum Agency Agreement, would result in the abandonment by the Planning and Coordination Committee at all attempts at stabilization, the results of which are just beginning to be felt in the refined products market after months of strenuous work by members of the industry, and would stop all progress which the national coordinator and the district allocators and allocating agencies are making in getting gasoline stocks and gasoline production to a more suitable working basis.

Wagner Labor Bill

The Wagner bill, which has the support of organized labor due to the fact that it places the biggest stick in their hands which these organizations have ever known, and which is opposed by practically all industry, is expected to be reported out of the Senate committee on labor within a few days. It is now being considered in executive sessions by the committee and some of the rough spots ironed out, but a favorable report was almost foreordained before its introduction into the Senate.

However, industry's attack on the bill, which will not come out until after its report to the Senate, is very carefully prepared. A simultaneous attack by large industry and small, by farmers and urbanites, by big employers and little employers, has been planned. This criticism is expected to be extremely effective in exposing the bad effect which it is alleged the passage of this measure would have on business.

Although, under the terms of this bill, companies would be excluded from in any way fostering a company union there would be no restriction placed upon organized labor, and paid labor organizers, from conscripting all industry under the banner of the American Federation of Labor. Various officials on different labor boards and advisory boards have expressed their opinions, in relation to this measure, as sounding the death-knell of all company unions, regardless of their efficacy or efficiency.

Within the next two weeks it is expected favorable committee recommendation will be given to the four bills enumerated. Almost all of them are going to be revised and amended in practically all provisions before they are put to the test of debate on the floors of the Senate and the House.

It is expected the constitutional questions will be thoroughly considered before any action is taken, as it has become increasingly apparent that Congress is considering more and more carefully the legality of the various measures brought before it. However, there has not yet been evidence that Congress would reject any bill which the President wanted just because some members of the legislative body thought it was unconstitutional.

Van Fleet's Qualification As Investigator Doubted

WASHINGTON, D. C., Apr. 22.—R. W. Van Fleet, newly appointed director and supervisor of investigators in East Texas, a former insurance agent from Winnetka, Ill., while not a next door neighbor of Administrator Ickes, lived in close proximity to him.

The first announcement said all files and records in the custody of Louis Glavis, concerning East Texas should be turned over to Van Fleet, as well as all investigators of the Division of Investigation in East Texas.

The second announcement did not mention Glavis, the Divisions of Investigation, or the files and records of that division, although the Administrator has stated Glavis was to be relieved of all investigative work concerned with the issuance of tenders.

Mr. Ickes' explanation was that he simply sent a man down there to take over the administrative work and to conduct investigations upon the request of the Federal Tender Board. Glavis' men, the Administrator explained, will continue to have the same authority to investigate whoever, and whatever they are directed to.

The new agency, it was explained will merely take over the administrative work of the Federal Tender Board.

What oil men generally want to know is what the experience gained practicing as an insurance agent will mean in his duties in carrying on investigations in East Texas. For the reason that the Department sees fit not to divulge the scope of the operations of the new agency in East Texas it cannot be clearly stated what its duties are, nor can the authority vested in Van Fleet under this order be shown.

The opening of a new field office by the Petroleum Administrative Board has been announced. The office is to be in Denver, Colo., and be headed by Charles A. Graham, a native of Denver, and a member of the legal staff of the Board, reported to have graduated from law school in 1933. He is a graduate of Yale University, and of the Yale Law School.

This, it is rumored, is the first of a series of field offices, to be devoted primarily to the gaining of code compliance in the marketing branch.

Lease and Agency Contracts Are Legal Federal Trade Commission Finds

WASHINGTON, D. C., Apr. 22.—Lease and agency, lease and license and others forms of exclusive dealing contracts are legal, the Federal Trade Commission has ruled, in answer to a request from the Petroleum Administrative Board to investigate such agreements.

It was held that lease and agency contracts are entirely within the law beyond any question if the contract is actually bona fide and really does what it purports to do. Lease and license contracts are of a more questionable character and should be considered on their individual merits, the commission said. Such agreements, the commission held, are in contravention of the Federal Trade Commission Act and the Clayton Act if the effect is to substantially lessen, or seriously menace independent distributor competition.

Before the commission can deliver a conclusive opinion on this subject, however, the commission believes a further investigation into this phase of retail marketing should be made. In this investigation, the commission says, the size of the corporations using the method, and the general monopolistic intent will be considered.

Whatever investigation the oil administrator desires in the matter will be undertaken by the commission if the petroleum administrator pays the bill.

Governmental Extravagance and Uneconomic Marketing Practices Featured Topics Before N. P. A.

By R. C. CONINE

CLEVELAND, Ohio, Apr. 22.—Governmental extravagance and uneconomic practices in marketing petroleum products were featured topics at the semi-annual meeting of the National Petroleum Association held here. More than 400 members were present for the three-day convention.

President Charles L. Suhr, chairman of the board of the Pennzoil Co., spoke of the high cost of selling gasoline at retail. The service station department, Mr. Suhr said, is much larger in volume of dollar sales than either production, refining or wholesale marketing, and it has developed so many unnecessary costly practices and inconsistencies that the production and manufacturing departments cannot much longer support the load it places on them. "As a friend of mine in the producing division of a large company dolefully put it, 'The trouble with the oil business is that we fellows can't get the oil out of the ground as cheaply as the sales department can sell it'," Mr. Suhr said.

"Are we not forced to admit that, basically," Mr. Suhr asked, "the retail sale of gasoline is just about as simple and economical an operation as can be found in a day's walk through the marts of trade? Why, then, is it not producing a profit in proportion to its great size and great amount of capital invested in it? One of the answers, of course, is, as we all know, that we have taken a simple operation and amplified it into a complicated one, costly to run. We are doing it the hard way."

Listing basic violations of sound merchandising principles of which he believed the industry guilty, Mr. Suhr placed first the practice of manufacturers and wholesalers in competing extensively with their own retailers. Then, unlike the usual chain store, the service stations were handicapped because they were not permitted to handle all popular, fast moving, profitable brands of merchandise. They were restricted to a single line and this cost them another advantage, volume buying. Not much overall profit, Mr. Suhr pointed out, could be gained by bearing down on the company's marketing department for lower prices. The intricate system of credit cards, likewise, cannot be defended.

"What Price Taxes?"

Until legislators place as much emphasis upon cost as they do upon need, Baird H. Markham said in his paper, "What Price Taxes?" no relief from excessive taxation may be expected. Mr. Markham is director of the American Petroleum Industries Committee. To combat governmental extravagance and growing levies, Mr. Markham urged the citizens to take a more active interest in the affairs of government. Otherwise, there will eventually be no incentive either to work or to engage in productive enterprise. Government will be in control of all business. In 1933, Mr. Markham said, petroleum taxes amounted to 429 per cent of the industry's earnings. In 15 years the average retail price of gasoline has been cut squarely in half. During the same period, taxes upon gasoline have increased several thousand per cent in rate and in cost. In 1924, for instance, 9 cents out of every $1 the consumer paid for gasoline went to the tax collector. In 1933 the tax collector took 30 cents out of every dollar for gasoline.

"To be without a motor vehicle," said Mr. Markham, "is equivalent to economic isolation. The automobile has become the link between the family and the job. Add to that the fact that one in every six workers engaged in wholesale trades in the United States today depends for his livelihood upon the automotive and petroleum industries, and you can visualize how quickly excessive taxation of these industries and their products can throttle economic recovery. The automobile is not a luxury but one of the most important necessities. Nearly one-fourth of all the citizens of this country, the motorists, are in contact with this industry through the service stations every day in the year. They are, for a few minutes, a listening audience, and should be given some information other than the price of gasoline."

Aside from the recognized reduction in volume sales caused by gasoline taxes, the petroleum industry is put to an expense of some $22,500,000 annually for collection, Mr. Markham pointed out. More threatening still, the speaker said, is the discriminatory levies applied under guise of "chain store" taxes. In some cases these taxes virtually amount to confiscation. In West Virginia, where the petroleum industry in 1933 did a business of $15,000,000 and paid chain store taxes totaling $481,168, retailers of general commodities did a business of $75,000,000 and paid only $60,785 in taxes. "In other words," Mr. Markham said, "the petroleum industry paid 88.7 per cent of the chain store tax bill for the privilege of doing 16.6 per cent of the business. Service stations constituted only 29.2 per cent of West Virginia's retail establishments in 1933, but paid 85.3 per cent of the chain store tax.

Marketing Agreements

Reviewing the history of the California cartel and the proposed marketing agreements in the eastern territory, C. E. Arnott, president of Socony-Vacuum Oil Co., pointed out that the petroleum industry has on several occasions closely approached a solution to its ruinous competitive problems. Mr. Arnott said considerable study has been given by the larger companies to uneconomic practices and their antecedents. It remains for the smaller units to recognize the willingness of the so-called majors to formulate and live up to marketing policies which will permit all to make a fair profit without prejudice to the consuming public.

Paul G. Blazer, president of Ashland Refining Co., approached the problem of unfavorable marketing conditions from the viewpoint of the small operator. Mr. Blazer is chairman of the petroleum code survey committee on small enterprises. The "price cutter," according to Mr. Blazer, exerts a stabilizing influence and the only fear the industry may have in its future lies in adverse legislation and taxation. That the industry must begin very soon to realize a profit on its merchandising, Mr. Blazer held obvious. There has been some improvement recently in prices, and some increase in confidence. The latter, the speaker said, was in a large measure due to the co-operative spirit shown by such men as Mr. Arnott and other leaders. However, price stabilization has been realized in the past and has proven of temporary benefit. Price wars are symptoms of malady and their cessation for a period does not indicate a permanent cure of underlying causes. Overexpansion, wrong psychology, indifferent or improperly trained personnel, refusal to adjust to changed conditions, were listed among the real maladies affecting the industry.

"Dollar Quota"

"Chiseling" on the part of independents, Mr. Blazer said, is not a source of worry to other small operators. The real trouble comes when large companies take up the fight for gallonage. Sales managers still want volume and the salesmen must produce regardless of the cost. The net back could be increased, quickly, if some 10 per cent of the least profitable retail outlets were closed. Elimination of the "sales quota" for each station or district would also make for a more stable price structure. A "dollar quota," Mr. Blazer said, is the only proper mark to shoot for. A moratorium on expansion of retail facilities would end one of the most aggravating troubles in the business today, the speaker said. There is no valid excuse for building a service station in new territory already supplied by other companies as no new business is created. The share of each station is merely reduced and the increased unit cost of marketing adds to the burden. Growing cost margins, according to Mr. Blazer, have been responsible for the spread of the trackside type of marketer. The independent refiner has a right to sell to low cost marketers. The real answer is not "cut off the low cost marketer," but correct the causes of high cost merchandising.

R. M. Dilworth, chief engineer of Electro-Motive Corp., General Motors subsidiary, spoke on fuels and lubricants for Diesel engines, particularly the new types designed for railroad use. The lubricating oil problem, the speaker said, has been fairly well worked out, but there is serious need for standardization in fuels. Production of Diesel fuel with scientifically derived ratings on the order of S.A.E. numbers is a pressing need. Mr. Dilworth spoke of an engine designer who produced a Diesel which worked efficiently until sold. The trouble was traced to the use of a different fuel. The earlier types of Diesel engines were huge affairs which would operate on practically any kind of fuel. The newer types, much lighter per horsepower, are far more criti-

(Continued on Page 86)

Underwood Nazro, Gulf Vice President, Succumbs to Protracted Illness

HOUSTON, Tex., Apr. 22.—Death Sunday ended the notable career of Underwood Nazro, executive vice president of the Gulf Production Co. and several associated firms and one of the most widely known men in the oil industry.

He succumbed at 11:45 a. m. at his home, 3030 Inwood Drive, where he had been confined by illness since his return 10 days ago from Battle Creek, Mich., after physicians had failed to cure his protracted illness. He had been in ill health for several months, and as his condition became worse, left his office for Battle Creek in quest of health. Returning to Houston his physicians ordered him to bed and his condition slowly took a turn for the worse.

Mr. Nazro started as an independent operator at the famous Spindletop Field, where he brought in No. 2 Beatty as a large gusher, the second well completed in the field. Pioneering, he aided the National Oil & Pipe Line Co. in 1901 in building the first oil pipe line from the Spindletop Field to Port Arthur. Together with the late D. R. Beatty and the late L. A. Carlton, he bought the assets of the National Oil & Pipe Line Co. at a receivership sale in 1906 and organized the Unity Oil Co.

He was appointed to the executive management of the new company and employed the late Joe A. Myers to look after the technical management of the company's properties, which comprised the original 10-acre Beatty tract at Spindletop and a pipe line and docks at Sabine Pass. The pipe line was later sold to the Sun Oil Co. and the proceeds used in buying additional properties.

His business administration of the firm attracted the attention of the Gulf Production Co. and in 1912 he was offered the vice presidency and general management of that company and rose to be active head of the Gulf Production Co., the Gulf Pipe Line Co., the Mexican Gulf Oil Co. and the Gulf Refining Co. of

UNDERWOOD NAZRO

Louisiana. Besides his association with the Gulf Production Co., he became connected with the San Jacinto Trust Co. of Houston, serving as a director and prior to coming to Houston served as president of the Gulf National Bank at Beaumont.

Mr. Nazro was born at Bowling Green, Ky., in 1875 and came to Texas after serving his apprenticeship in the oil business in West Virginia.

Pacific Coast Agency Members Are Signing Supplemental Clause

By L. P. STOCKMAN

LOS ANGELES, Calif., Apr. 22.—The most important problem confronting the California oil industry at the present time is the necessity of stabilizing marketing conditions and provide for extension of the Pacific Coast Petroleum Agency because this forms the backbone of crude oil prices which in the final analysis holds the key to stability of general business on the Pacific Coast. Other basic industries on the West Coast are so closely allied and co-ordinated that a depressed condition in one is almost immediately reflected in other primary industries. For this reason it is necessary that the petroleum industry be put back and maintained on a sound basis as stability of this business must of necessity favorably affect other lines of industry and this in turn is ultimately reflected in increased business by petroleum marketers. During the past two weeks gasoline prices have undergone a series of ups and downs due to chiseling tactics of certain resellers who have engaged in illegitimate rebating practices.

Constructive factors on the Pacific Coast are of the opinion that refiners will recognize the advisability of prolonging existence of the Pacific Coast Petroleum Agency in a modified form for another year but there is no definite assurance that this can be accomplished. A small minority can very easily prevent extension of the marketing agreement by refusing to become members and thus thwart the wishes of constructive marketers to stabilize prices to the mutual benefit of both producers and refiners. A committee has been diligently working for the past several weeks redrafting a new agreement to take the place of the existing market agreement which expires June 15, 1935. Both the agency agreement and refiners' agreement must undergo revision in order to eliminate serious disadvantages.

Judicial Committee

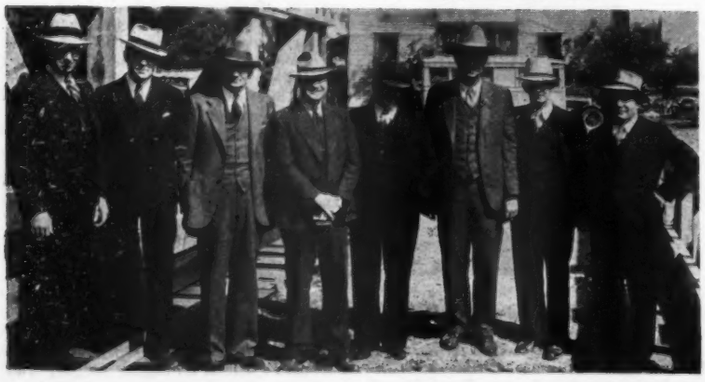
It is quite obvious, in view of what has happened during the past few weeks, that some penalty must be imposed for infraction of rules and as a consequence of this members of the agency and members of the refiners' groups have pledged support of a revolving fund to provide finances for the prosecution of recalcitrant members. In addition to this, a judicial committee consisting of Charles S. Jones of the Rio Grande Oil Co., C. A. Johnson of the Holly Oil Co. and W. C. Van Fleet of the Pacific Coast Petroleum Agency has been appointed to consider violations of the agreement and to assess adequate fines. Heretofore, neither the agency nor any of its members has had any recourse to assess fines for violations and consequently this has been a weak link in the chain. The agency agreement was originally predicated on the principle that refiners and marketers could be expected to abide by their promises, but since some of them have failed to conform with provisions of the agreement, the agency has decided that it would prove more advantageous to assess a stiff fine in case they forget or exceed the bounds of propriety.

In order to discourage future violations under the existing agreement signatories to the agency agreement and refiners' agreement will be obliged to post a bond of $10,000 to insure payment of any fines levied. This bond has already been posted by major companies and they became susceptible to fines on and after April 18. It has become quite obvious during the past few years that the chief problem has been the failure of executives to appoint capable sales managers and to take these subordinates into their confidence and lay down specific rules and regulations. Failure to do this has thwarted the best endeavors of executives to stabilize conditions because, judging from the sales executive's standpoint, a company can not justify the turning down of a chance to get new business even though it is necessary to underbid competitors. The giving of too much leeway to sales executives in many cases is one of the primary reasons for the silly gasoline price wars for which no one has finally found a valid reason.

Signing New Clause

At the close of the week 38 out of 41 members of the Pacific Coast Petroleum Agency and refiners agreement had signed a supplemental agreement providing for the posting of $10,000 and giving the designated judicial committee power to assess fines against violators in the amount of $500 for each offense with each day or violation considered a separate offense. This will operate until June 15, the expiration date of existing marketing agreement, but will undoubtedly be incorporated in the projected agreement to take the place of the existing agreement if marketers ratify the plan to prolong the stabilized marketing plan which has been in effect with satisfactory results since June 15 of last year.

One of most important provisions of the new supplemental pact to run during the existence of the present marketing agreement is the stipulation that any company may serve its trade through company owned facilities or by a wholesale agent or by a recognized distributor but that not more than one of these shall operate for the same company in any single territory. This is aimed at marketers having a multiplicity of outlets or operating through secondary outlets. It is obvious these secondary companies bidding against each other have intensified marketing conditions. It is further provided that no member of the Pacific Coast Petroleum Agency, which for the most part consists of major companies, shall sell any third grade gasoline through a refiner member either directly or indirectly as this practice has had a tendency to conflict with the duties of the agency.



Left to right: Frank Bass, assistant superintendent, Gulf Coast Division, Humble Oil & Refining Co., Houston; Lee Mowery; A. H. Smith, district superintendent, Humble Oil & Refining Co., Goose Creek; George O'Leary, president Houston Oil Fields Material Co.; W. S. Bradley, district superintendent, Humble Oil & Refining Co., Conroe; Sid C. Moor, district superintendent, Tomball, F. M. McGehee, district superintendent, Daisetta, and H. H. Spain, district superintendent, Dickinson

Drastic Truck and Bus Regulation Bill Passed in Senate Affects Oil Trade

WASHINGTON, D. C., Apr. 22.—The Eastman motor carrier bill, sponsored by Railroad Coordinator Eastman, as passed by the Senate without a dissenting vote, is a discriminatory menace to the motor truck and consequently to the oil industry which supplies the fuel and oil to the multitude of carriers which operate on our highways furnishing the most remote sections of the country with a speedy and dependable transportation system that the railroads have failed to offer.

What House concurrence on the Senate measure would mean is indicated by a listing of the stringent points of the bill.

Giving control of motor bus and truck rates, service, accounts and maximum hours of service of employes to the Interstate Commerce Commission; this applies to both common and contract carriers in interstate commerce.

Permitting the Interstate Commerce Commission, if need is found, to establish for private truck companies reasonable requirements in regard to qualifications and maximum hours of service of employes and safety of operation and equipment.

Giving the Interstate Commerce Commission power to supervise all phases of the business of motor vehicle transportation brokers.

Providing that motor carriers must file with the Interstate Commerce Commission, and keep open to public inspection, all their tariffs, and that these tariffs can be changed only on 30 days' notice. In special instances, the Commission may grant "short notice" applications.

The legislation also provides that no certificate for operation of a motor carrier can be issued unless commission rules and regulations, covering insurance or other financial steps to safeguard the public, are complied with. Such regulations might well result in "weeding out" the bus and truck field.

Operation of new bus or truck services is contingent on issuance of a commission permit. Motor vehicle carriers, operating specific routes during 1934, would automatically receive permits if they apply within four months of the effective date of the measure, set as July 1, 1935, unless postponed by the Interstate Commerce Commission.

The Commission, too, is given powers over issuance of securities by large-sized motor carrier companies, similar to the control it exercises over issuance of railroad securities. It has jurisdiction over consolidations of properties, and may approve them only if they are "consistent with the public interest."

House Holds Bill's Fate

House action on the measure hinges, in part, on action taken in regard to the Eastman proposal for enlargement and reorganization of the Interstate Commerce Commission. Bus and truck interests, opposing the bill, are particularly anxious it shall not be administered by the present Interstate Commerce Commission, which they regard as "railroad-minded."

The chief threat to House action on the bus and truck measure is regarded as delay or rejection by the House Interstate and Foreign Commerce Committee. If the measure is brought up for final action by the House, anticipated administration pressure would be sufficient to assure it of passage.

Automotive Head Protests

In a letter to Representative Huddleston (D., Ala.), chairman of the House subcommittee now considering the measure, Alfred Reeves, vice president of the Automobile Manufacturers Association, charged that provisions of the bill tend to "impair and restrict the freedom, flexibility and economy of interstate motor truck transportation and . . . subject truck operators to more stringent and burdensome regulation than that which now applies to the railroads."

Regulation of highway transportation should be restricted to simple and inexpensive requirements which could be met by all interstate truck operators without penalizing the shipping public, Mr. Reeves held.

Holding that conditions with respect to motor buses differ substantially from those pertaining to motor truck transportation, he recommended that a separate measure be enacted for the regulation of "for hire" bus operations as recently advocated by organizations representing the motor bus industry.

Elimination from the Eastman bill of provisions "designed to protect interstate shippers against discrimination favoring intrastate shippers" was also criticised by Mr. Reeves.

Present Law Protects

"The present law, Section 13 of the Interstate Commerce Act, protects the railroads and shippers using the railroads from such discrimination and does not permit state regulatory bodies to admin-

(Continued on Page 32)

Heat of Solution of Natural Gas Associated With Petroleum Oils

By E. NEYMAN and S. PILAT
Laboratory of Petroleum Technology, Lwow, Poland

Investigations connected with a method of fractionation of lubricating oils at room temperature by means of gas solutions[1] led us to determine the thermal effects accompanying this process and also to get acquainted with the thermal phenomena usually accompanying the process of dissolving methane in propane or in other hydrocarbons as well as the precipitation of another liquid phase.

Fischer and Zerbe[2] as well as Frolich with his collaborators[3] found that the solubility by weight of methane in the same class of hydrocarbons decreases when the molecular weight increases; and also that methane is easily dissolved in light hydrocarbons of the paraffin series but to a smaller amount in aromatics. The results of the above mentioned experiments show that the separation of oils into fractions by means of methane as a solvent is based on differences in the chemical structure and not, as in distillation, on common physical properties.

According to Graham's theory[4] gases dissolved in liquids become condensed, so that the solutions of gases can be considered as mixtures of more or less volatile liquids. Accepting this thesis, B. Neuhausen and W. Patrick[5] in their work on gas solutions with special regard to the ammonia-water system, have come to the conclusion that the gas cannot be dissolved in a great quantity above its critical temperature in a liquid because its liquefaction is apparently impossible. These authors quote as an example the fact, that xenon becomes dissolved in water[6] in the relation of 1 mol. to 10,000 mols of water. Therefore in this case we have not to deal with the condensation of xenon but rather with the retaining of the molecules of the gas, thanks to the attractive force of the numerous molecules of water. This conclusion does not agree with the available data concerning the solubility of methane in organic liquids.[7,8]

Solubility of Methane

In Table 1 are recorded the data obtained by various authors concerning the solubility of methane in light hydrocarbons.

It ought to be emphasized that, although the experiments mentioned above have been executed at a temperature about 100° C. (180° F.) higher than the critical temperature of methane, the solubility is much higher than the solubility noticed by Neuhausen and Patrick.

Methane when dissolved probably becomes liquefied, regardless of the fact, that the phenomenon occurs above or below its critical temperature. It is well known that gases, dissolved below their critical temperature, evolve, besides the heat of mixing, also the heat of liquefaction. As to the solubility at higher temperatures, no experimental data have been found in the literature on this subject. The authors investigating the solubility of gases in liquids limited their activity to theoretical calculations of thermal effects on the base of the increase of the solution's volume.[10]

TABLE 1.—SOLUBILITY OF METHANE IN LIGHT HYDROCARBONS

Authors	Pressure in atm.	Temp. °C.	Temp. °F.	Solvent	Molar fractions of CH_4 in solution
Sage, Lacey, Schaafsma[7]	95	20	68.0	propane	0.574
Godlewicz, Pilat[8]	100	20	68.0	propane	0.564
Frolich[3]	80	25	77.0	propane	0.394
Frolich[3]	80	25	77.0	n-pentane	0.400
Frolich[3]	80	25	77.0	hexane	0.414
Frolich[3]	80	25	77.0	octane	0.441
Frolich[3]	80	25	77.0	benzene	0.194
Lacey, Sage, Kircher[9]	80	37.7	99.9	crude oil	0.255
Hill, Lacey[9]	20.4	30	86.0	pentane	0.1016
Hill, Lacey[9]	20.4	30	86.0	hexane	0.1098
Hill, Lacey[9]	20.4	30	86.0	heptane	0.0960
Hill, Lacey[9]	20.4	30	86.0	benzene	0.0403
Hill, Lacey[9]	20.4	30	86.0	kerosene	0.1152

Berthelot's calorimetric bomb and a steel cylinder filled with natural gas. The calorimetric bomb with a copper tube conducting gas to its bottom had a capacity of 270 cc. The heat capacity of the calorimeter was determined by a combustion of salicylic acid in oxygen and found to be 355 cal./°C. (197.2 cal./°F.). In order to diminish the thermal capacity of the calorimeter, the vessel was filled with tetrahydronaphthalene instead of water, the specific heat of which is 0.403. Between the cylinder with natural gas and the calorimetric bomb an autoclave with a manometer of a volume of three liters, was used. Between the autoclave and the calorimetric bomb was attached a precise manometer indicating the pressure in the calorimetric bomb during the entire experiment. The pressure in the autoclave was regulated by means of a hand compressor. The experimental error amounted to 15 calories.

Natural gas of the following composition was used: CH_4 — 97.926%; C_2H_6 — 0.725%; C_3H_8 — 0.181%; C_4H_{10} — 0.121%; N_2 — 1.01%; CO_2 — 0.037%. In order to determine the heat of dissolving gas under pressure it was necessary first to determine the thermal effect accompanying the compression of gas. The natural gas which was in the autoclave under pressure p_1 was introduced into the bomb placed in the calorimeter by opening the reducing valve. The initial pressure in the bomb was 1 Atm. The expansion of the gas when passing through the valve decreased its temperature and was followed, after the compression of gas in the bomb to the pressure p_2, by a temperature rise. The proportion of the pressure p_1 to the pressure p_2, depends only upon the volume ratio of the autoclave to the calorimetric bomb. The amount of heat being evolved by compression of the gas from 1 Atm.

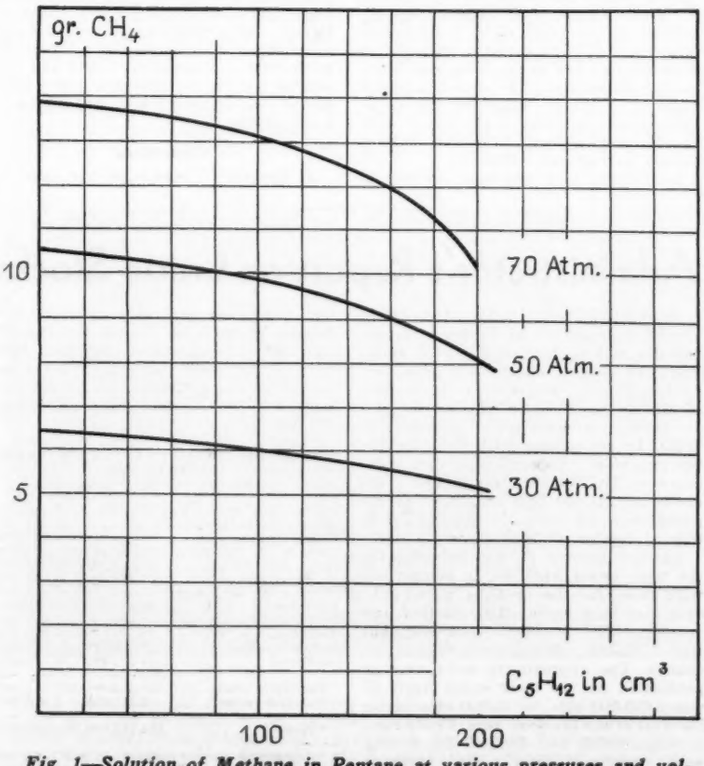


Fig. 1—Solution of Methane in Pentane at various pressures and volumes of solvent

Experimental Equipment

The apparatus used in our investigation consisted of a calorimeter with a

to the pressure p_2 in a bomb of a capacity V can be calculated as follows:[11]

$$Q = \times p_2 \times 10{,}000 \times V \times \ln \frac{p_2}{1}$$

which, if V = 270 ccm, and A becomes substituted by the equal value 1/427 is

$$Q_k = \frac{2{,}303 \times 10{,}000 \times 0.00027}{427} p_2 \times \log p_2$$

The calculated values of the compression heat and the quantities of gas filling the bomb at the given pressure are shown in Table 2.

TABLE 2.—HEAT OF COMPRESSION AND MASS OF METHANE CALCULATED AT VARIOUS PRESSURES

p_2 atm.	Q_k cal.	Mass of CH_4 grams	Heat of compression cal/g.
20	380	3.64	104
30	642	5.54	116
40	923	7.49	124
50	1,226	9.55	129
60	1,550	11.58	134
70	1,900	13.80	140

The heat of the compression calculated in this way has been set up only in order to obtain a comparison with values obtained during the experiments, because, by introducing into the calorimeter the gas cooled by expansion, we could not obtain in the calorimeter the total heat of compression but a somewhat lower amount. The values obtained for compression of natural gas are shown in Table 3. In order to check these results the volume of the bomb was altered by mercury or leadshot.

TABLE 3.—HEAT EVOLVED AND MASS OF METHANE DETERMINED BY EXPERIMENT AT VARIOUS PRESSURES

p atm.	Vol. of the bomb cc.	Q_k cal.	*Mass of CH_4 g.	Heat of compression cal/g.
38	270	230.6	6.8	34.0
43	270	265.8	7.0	38.2
48	270	304.9	7.0	43.5
49	270	380.4	9.36	40.6
50	270	380.9	9.36	40.6
52	270	365.0	9.0	40.6
62.5	270	482.6	11.4	42.1
48	135	157.9	4.15	38.0
50	135	166.3	4.32	38.5
55	202	287.0	7.13	40.2
57	135	199.2	5.0	39.9
69	135	258.6	5.98	43.3
87	135	356.3	7.52	47.2

*The values m have been calculated on the base of the values PV of methane given by Kvalnes and Gaddy.[12]

The quantity of the natural gas given in the fourth column in grams and determined by weighing differed in many cases from the calculated mass for the given pressure. Such a way of determining the mass has been chosen in consideration of later experiments, in which the calculating of gas with an unknown solubility would have been impossible. As can be seen from Table 3, the thermal effects are smaller than those which were calculated first. They represent not the real heat of compression but a correction which should be deducted from the total heat evolved during the process of dissolving the natural gas in liquid hydrocarbons.

Solvents for Methane

Benzene, heptane, pentane and propane were used as solvents for methane. After filling the bomb with a certain quantity of one of the above mentioned solvents, the bomb was weighed and, after having been brought to a constant temperature, methane was introduced as described above, and the rise in temperature observed. The quantity of the introduced gas was determined by weighing. The only figures referring to the solubility of methane under various pressures and in various solvents are recorded in the work of Frolich and his collaborators[3] where a diagram of the solubility of methane at 25°C. (77°F.) is to be found which enabled us to check our results. The process of dissolving methane in liquid hydrocarbons is, however, not adequately presented by this diagram as no notice is taken of the considerable increase of volume accompanying it which

according to Horiuti[12] is of outstanding importance.

The thermal effects observed when natural gas has been dissolved under a pressure in 135 cc. of benzene (by filling the bomb to the half) are shown in Table 4.

TABLE 4.—THERMAL EFFECT OF SOLUTION OF NATURAL GAS IN BENZENE
Temperature: 17-18°C. (62.6-65.4°F.)

p atm.	Volume of the bomb cc.	m g. CH_4	Q_v cal.	Q_k cal.	Q_v-Q_k cal.
29	270	2.55	89.5	102	—12.5
30	270	2.60	97.9	104	— 6.1
42.5	270	5.0	214.8	200	+14.8
45	270	6.0	196.0	240	—44
46	270	6.0	215.0	240	—25
48	270	8.0	265.5	320	—54.5
50*	202	3.8	129.9	152	—22.1
52.5*	202	3.85	132.1	154	—21.9
61*	202	4.6	176.8	202	—25.6
65*	202	4.7	185.3	207	—21.7
71*	202	5.3	234.3	233	+ 1.3
76*	202	5.65	228.0	248	—20

In the above table the values m represent the quantity in grams of natural gas introduced into the bomb and determined by weighing, which includes the gas dissolved and that remaining in the gaseous phase. The values for m are proportional to the pressure, taking into account that the volume of the bomb in some experiments* was modified by adding lead-shot. Accepting, as in Table 1 that for p = 20.4 Atm, at the temperature of 30°C. the composition of the liquid phase being 4 mols. CH_4 against 96 mols. of benzene, it can be calculated, if no notice is taken of the increase of volume of the solution, that for 135 ccm. of benzene i.e. 118 g., 1.01 g. of methane must be dissolved. If during the process of dissolving, the heat of liquifaction of gas would be produced, then with regard to the latest heat of evaporation amounting to 138 cal/g. for methane, 139.4 cal. ought to be produced during the experiment carried out at 24.4 Atm. pressure. With higher pressures and consequently with a greater solubility of gas, the thermal effect ought to become still more striking. The real thermal effect is however of a far lower order and often negative as can be seen from Table 4 where Q_v indicates the total heat evolved during the experiment, Q_k the correction due to the heat of compression (for lower pressures 40 cal/g., for higher ones 44 cal/g.), and $Q_v - Q_k$ their difference, i.e., the observed thermal effect accompanying the solubility. This points to the conclusion that during the process of dissolving natural gas in benzene, no heat of liquifaction is produced and the small thermal effect which can be observed is caused by mixing two liquid hydrocarbons. Its negative value can be explained by the fact that, when methane becomes dissolved, noticeable increase of the solution's volume accompanies this process.

Heptane and Pentane

Tables 5 and 6 show analogous results obtained for heptane and pentane. Both hydrocarbons have been obtained from Kahlbaum's preparations by means of fractional distillation. The pentane distilled from 31-36°C (87.8-96.8°F.)/740 mm., specific gravity 0.628/18°C (65.4° F.), and the heptane fraction 95.6-96.6°C. (204.1-205.9°F.)/740 mm., specific gravity 0.718/18°C., (65.4°F.)

TABLE 5—THERMAL EFFECT OF SOLUTION OF NATURAL GAS IN HEPTANE
Volume of heptane—135 ccm., T = 17-18°C. (62.6-65.4°F.)

p atm.	m g. of CH_4	Q_v cal.	Q_k cal.	Q_v-Q_k cal.
29	5.2	202.2	208	— 5.8
33.5	5.45	214.8	218	— 3.2
34.5	5.5	247.3	220	+26.7
48.5	7.85	309.7	314	— 4.3
50.5	8.1	355.1	324	+31.1
53	8.25	352	330	+22
57.5	8.6	354.2	344	+ 9.8
60	9.35	362.6	374	—11.4
63	10.2	411.3	408	+ 2.7
71	10.85	474.5	477	— 2.9

The thermal effect depending apparently upon the proportion of the liquid phase present, a series of experiments was carried out with different quantities of pentane the pressure remaining constant.

TABLE 6—THERMAL EFFECT OF SOLUTION OF NATURAL GAS IN VARIOUS VOLUMES OF PENTANE
p = 50 Atm., T = 17-18°C. (62.6-65.4°F.)
Volume of the bomb = 270 cc.

Volume of pentane cc.	Q_v cal.	Q_v-Q_k cal.
5	373.0	—93.2
15	380.2	—87.0
20	362.4	—89.2
50	411.6	—48.0
75	421.1	—18.0
100	445.2	+ 7.0
125	449.0	+27.2
150	448.0	+48.2

The values of the mass of gas introduced into the bomb which are necessary for calculating the correction concerning the heat of compression, have been determined as before, by means of weighing and are plotted in Figure 1. It can be seen from Table 6 that the heat of solution, however rather negligible, depends upon the quantity of solvents. It is difficult to explain its increase from negative values to positive ones. There is some probability that the small quantity of pentane evaporates under these conditions which would account for the smaller increase in the temperature. This effect presents some analogy with solutions of liquids or solids in gases under pressure which were observed and investigated by P. Villard[14] in 1898.

In order to investigate the distribution of natural gas between the liquid and vapor phase, a sample of pentane saturated with the gas at 50 Atm. was led through activated charcoal into a gasometer where the quantity and density of the unabsorbed gas was determined. The difference of weight of the charcoal accounted for the pentane absorbed. The result of such simplified analysis was that 8.3 g. natural gas were dissolved at a pressure of 50 Atm. at 18°C. (65.4° F.) in 100 g. pentane. Although this method may be open to criticism, the close agreement with Frolich's data (8.5 g. methane in 100 g. pentane) may serve as a confirmation of its usefulness.

Solutions of natural gas in pentane even when saturated at pressures of 80 Atm. are still very good solvents for any kind of oils. Therefore they cannot show any selectivity which would lead to the precipitation of a part of the oil previously dissolved in pentane in form of another liquid layer. Nevertheless the solubility of natural gas in pentane is visibly reduced by the presence of heavier hydrocarbons as shown in Table 7. These figures were obtained by dissolving the substance under investigation in pentane (1:4), saturating this solution with natural gas at 50 Atm. and determining by weighing the decrease of the quantity of the gas dissolved. The influence of the chemical is obvious as well as the very marked difference between chlorex extract and raffinate.

In investigating solutions of natural gas in propane-butane fraction containing 61.2% C_3H_8, 34.63% n-butane and 4.17% iso-butane, which were used by Godlewicz and Pilat[1] as selective solvents for lubricating oils, such remarkable solubility of natural gas was observed, that at pressures of about 100 Atm. when the mol.-fraction of methane amount to 0.56 (see Table 1) it could be referred to as a solution of propane in methane. Furthermore an increase of the quantity of natural gas at a given pressure has been shown, when the amount of the propane-butane present in the bomb was increasing. Thus it can be said that the empty bomb can contain less methane than when partially filled with propane-butane, at a given pressure. By complete filling of the bomb with propane, it is impossible to introduce any methane into it, as the process of dissolving is accompanied by a considerable increase in the volume of the liquid phase, for which there is no place in such a case.

TABLE 7.—DECREASE IN SOLUBILITY OF NATURAL GAS IN VARIOUS SOLUTIONS OF PENTANE AND OTHER HYDROCARBONS

Hydrocarbons—	Decrease in solubility Per cent
Fraction 130-155°/1 mm. of aromatic hydrocarbons derived from petroleum sulphonic acids	16.8
1-methylnaphthalene	14.4
Chlorex extract	14.8
Chlorex-raffinate	11.2
Fraction from crude petroleum precipitated by methane at 40 Atm.	14.2
Fraction from crude petroleum precipitated by methane at 40-50 Atm.	13.7
Fraction from crude petroleum precipitated by methane at 50-70 Atm.	11.1

Calorimetric Determinations

Calorimetric determinations carried out during the process of dissolving methane in propane, proved to be quite analogous to experiments with heptane or pentane. Notwithstanding the greatly increased solubility of methane, the thermal effect was almost equal to the amount of heat accompanying the compression of gas.

Some experiments were carried out to ascertain if any thermal effect accompanied the formation of a second liquid layer upon pressing methane into a solution of an aromatic hydrocarbon in the propane fraction. It was observed that for instance from a 20 per cent solution of 1-methylnaphthalene in propane, the former was precipitated by methane at a pressure of 50 Atm. as a second liquid phase, but no thermal effect could be traced. The formation of a second liquid phase is not accompanied by a noticeable production or absorbtion of heat and this corresponds to the generally small thermal effects connected with the mixing of hydrocarbons.

Conclusions

J. Horiuti[10, 11] calculated the amounts of heat produced by dissolving gases at constant volume and pressure. He found the visible heat of dissolving methane in carbontetrachloride at 25°C (77°F.) and at constant pressure amounted to 43.5 cal/g. He calculated the heat effect at constant volume for the process of dissolving methane in carbontetrachloride to be 273 cal/g. in benzene, 275 cal/g. No data on solubilities of methane in carbontetrachloride being available, we can conclude however from Frolich's work that in 135 cc. of benzene at 60 Atm. 4.05 g. methane become dissolved. Now taking the corresponding figure from Table 4 it is to be seen that at 60 Atm. the thermal effect is of –25 cal. only, in evident disagreement with Horiuti's calculations.

The thermal effects accompanying the process of dissolving methane in hydrocarbons are rather small in spite of an important solubility sometimes. But even if the gas would become liquefied when dissolved no heat of liquefaction could be produced, this process occurring at temperatures high above the critical.

Summing up the results of this investigation it can be said that for technical purposes the thermal effects accompanying the process of dissolving natural gas in hydrocarbons are practically restricted to the heat of compression. The heat of dissolving gas the same as the formation of a new liquid layer are of a much smaller order.

BIBLIOGRAPHY

[1]M. Godlewicz, S. Pilat, Przem. Chem. 18.376 (1934); Pol. Pat. 20,607 (1934).

[2]F. Fischer, C. Zerbe, Brennstoffchemie, 4,17 (1923).

[3]P. K. Frolich, E. J. Tauch, J. J. Hogan, A. A. Peer, Ind. Eng. Chem. 23,548 (1931).

[4]Th. Graham, Chemical and Physical Researches (Edinburgh 1876) p. 1.

[5]B. S. Neuhausen, W. A. Patrick, Journ. Phys. Chem. 25,693 (1921).

[6]V. Antropoff, Z. F. Elektrochemie, 25,269 (1919).

[7]B. H. Sage, W. N. Lacey, J. G. Schaafsma, Ind. Eng. Chem. 26,214 (1934).

[8]W. N. Lacey, B. H. Sage, C. E. Kircher, Ind. Eng. Chem. 26,652 (1934).

[9]B. S. Hill, W. N. Lacey, Ind. Eng. Chem. 26, 1324 (1934); R. D. Pomeroy, W. N. Lacey, N. F. Scudder, F. P. Stapp, Ind. Eng. Chem. 25, 1014 (1933).

[10]J. Horiuti, Z. F. Elektochemie, 39, 20, 22 (1933).

[11]W. Schule "Leitfaden d. Technisches Warmemechanik" p. 105 (1925).

[12]H. M. Kvalnes, V. L. Gaddy, Journ. Amer. Chem. Soc. 53,394 (1931).

[13]J. Horiuti, Sc. Papers of Inst. Phys. and Chem. Res. Tokio, 17,125 (1931).

[14]P. Villard, Chem. News 16 Dec. 297 (1898).

Administrator's Report on Crude Stocks

WASHINGTON, D. C., Apr. 22.—Stocks of domestic and foreign crude petroleum at the close of the week ended April 13 totaled 324,289,000 bbls., according to data compiled by the Bureau of Mines, Department of the Interior, for Petroleum Administrator Harold L. Ickes. In comparison with data for the previous week, this total represents a decrease of 195,000 bbls., comprising a decrease of 271,000 bbls. in stocks of domestic crude oil and an increase of 76,000 bbls. in foreign crude stocks.

Current reports of the industry for the week ended April 13, in comparison with those for the previous week, indicate that both crude oil production and runs to stills increased materially but that imports showed practically no change. The approximate daily average production for the week ended April 13 was 2,625,000 bbls., or 45,000 bbls. above the level of the previous week. Crude runs to stills, which had declined for several weeks, increased from a daily average of 2,360,000 bbls. to an average of 2,505,000 bbls. The estimated daily average balance of crude oil for the week ended April 13 was as follows: (barrels): Production, 2,625,000; imports, 84,000; decrease in stocks, 28,000, equals runs to stills, 2,505,000; exports, fuel, and losses, 232,000.

STOCKS OF CRUDE PETROLEUM, APRIL 6 AND 13, 1935
(Barrels of 42 gallons)

Grade of crude oil:	April 6	April 13
Pennsylvania crude	4,530,000	4,526,000
Other Appalachian	926,000	885,000
Lima-N. E. Ind.-Mich.	1,230,000	1,223,000
Ill.-S. W. Indiana	11,552,000	11,501,000
N. La. & Ark.	9,893,000	10,047,000
W. Tex.-S. E. N.Mex.	30,585,000	31,289,000
East Texas	30,635,000	30,275,000
Other Mid-Continent	149,193,000	148,552,000
Gulf Coast	20,314,000	20,893,000
Rocky Mountain	27,676,000	27,637,000
California	34,021,000	33,528,000
Domestic crude	320,612,000	320,241,000
Foreign crude	3,872,000	3,948,000
*Total	324,484,000	324,289,000

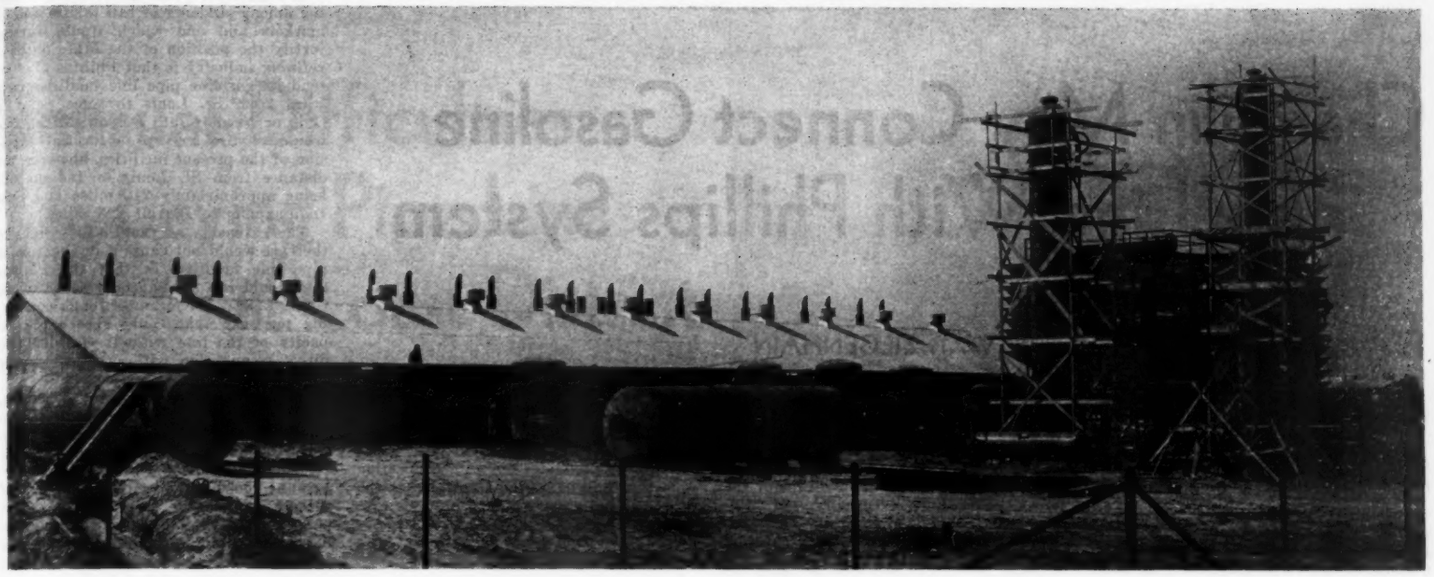
*Represents approximately 93 per cent of total stocks in the United States, exclusive of producers' stocks.

Steering Committee for Tulsa Chapter of A.P.I.

At a meeting of the officers of the various technical societies having headquarters or branches in Tulsa it was decided that there is real need for an A.P.I. Chapter of the Division of Production for Tulsa and this committee is to make report at an organization meeting to be held on the evening of April 29.

This movement had its start at the recent spring meeting of the Mid-Continent section of the A.P.I. Division of Production and has been crystalized into a definite plan for forming a chapter in Tulsa through a series of meetings of a steering committee. At the general meeting held on the evening of April 19 it was decided to secure an expression of opinion from a representative group of engineers and technical men affiliated with other societies. This meeting was held April 21 and the report indicates that the chapter will be formally brought into being at a called meeting for April 29.

The officers of the technical societies of Tulsa who attended the Monday meeting were: H. H. Power, L. L. Foley, H. D. Collins, M. L. Terry, A. W. Walker, J. W. Alcorn, H. H. Wright, D. L. Trax, Harry F. Wright, D. G. Hawthorne, Samuel J. Caudill, Dr. Ed Bloesch, Hollis P. Porter, A. J. Kerr, H. M. Cosgrove, H. F. Stover, O. E. McClatchey, G. H. Card, C. F. Bedford, Glenver McConnell, Harold Adkison, L. A. Ogden and H. F. Brindel.



This construction picture of the new natural gasoline plant of the Sabine Valley Gasoline Co., Inc. shows equipment for scrubbing incoming gas, compressor building housing eleven twin compressors, and rectification and stabilization towers for finishing the product

New Sabine Valley Natural Gasoline Plant to Begin Operations May 1

By GEORGE WEBER

With construction proceeding according to schedule, operations are expected to begin May 1 at the new plant of the Sabine Valley Gasoline Co., Inc. This represents the largest construction project in the natural gasoline industry for the past several months. The plant is located on the Mary Scott Survey in Gregg County, East Texas. Approximately 1,000 wells are connected at present into the gathering system which is designed to serve the ultimate maximum of 1,250 wells.

Construction work with the exception of the field lines and heat insulation has been done entirely by the company itself. All equipment was purchased new. In the compressor bank are 11 new Cooper-Bessemer twin compressors of 230 horsepower each. They will operate at two stages of compression, fed by two overhead manifolds and discharging into two underground headers. Electricity for the plant will be furnished by turbo-generators. Seventy-five miles of field lines comprise the gathering and residue systems.

High Compression

The plant is of the compression and rectification type, operating at high pressures in the absence of absorption. Raw gas is gathered in four main field lines measuring 12, 14, 16 and 20 inches. About 12,000,000 cubic feet can be handled per day. The gasoline content of the gas varies from 3 to 3½ gallons per thousand cubic feet. Two large horizontal tanks are installed at each end of the plant, each fed by two of the gathering lines. From these the gas enters two scrubbers which discharge into a 24-inch low pressure header. In the first stage the gas is compressed from 10-inch vacuum to 50 pounds. After passing through an oil separator the gas is cooled and a small gasoline fraction is knocked out in a second separator. The gas will discharge at 250 to 300 pounds pressure, probably about 275 pounds.

Rectification

From this point the process is one of regular rectification and stabilization. The mixture of gas and liquid is cooled before entering the rectifying column. Control is maintained by reflux volume at the top of the tower and by reboiling at the bottom. The vapors over the top are cooled in two overhead water coolers and sent through a separator from which the liquid fraction is returned to the tower as reflux. The lean gas from the separator is discharged into the residue lines under a high pressure.

These men directed the construction of the new natural gasoline plant. They are, left to right, E. P. Dillman, sales manager, Wyatt Metal and Boiler Works; P. G. Raigorodsky, president, Petroleum Engineering, Inc., and D. E. Farris, plant foreman, H. R. Dickerson, president and H. H. Beeson, chief engineer of the Sabine Valley Gasoline Co., Inc.

The grasoline fraction is drawn from the bottom of the rectifying column, cooled and charged into a surge tank. From there it is pumped to the stabilizer for finishing. The flexible control on the stabilized will allow for a product range of from 18 to 28 pounds natural. From the pressure storage at the plant, the natural will be piped to the company's loading rack located on the I.G.N. Railroad. At present the capacity for loading is six cars, but arrangements are made for enlargement to accommodate eight cars.

Plant Engineers

H. H. Beason is the chief engineer in charge of construction of the plant. D. E. Farris is the plant foreman. C. E. Whorton of the Hanlon Gasoline Corp. of Texas and P. M. Raigorodsky of Petroleum Engineering, Inc., are consulting engineers during construction. The company, headed by H. R. Dickerson, has head offices in Shreveport.

This new plant will add approximately 30,000 gallons to the daily natural gasoline output from the East Texas Field. It provides an outlet for a large amount of gas heretofore without an adequate market. Together with enlargements made recently in other major plants, capacity for the production of natural gasoline from this area has reached about 200,000 gallons daily.

Marland Urges President to Further Oil Compact

OKLAHOMA CITY, Apr. 22.—Governor Marland Monday forwarded to President Roosevelt a request that he urge Congress to ratify the interstate oil compact. The governor wrote:

"I have been authorized by the governors of the ratifying states to transmit the compact to you and to the appropriate committees of Congress and to request, on behalf of the ratifying states, that you transmit the compact to Congress with a message recommending approval thereof."

The states which have ratified are New Mexico, Oklahoma, Kansas, Texas and Colorado.

In explanation of the request for presidential support, Governor Marland wrote: "The governments of these states share the earnest conviction that the approval of this compact by Congress will permit effective measures to be taken tending toward the conservation and maximum ultimate recovery of our irreplaceable petroleum reserves."

Champlin May Connect Gasoline Pipe Line With Phillips System

By W. T. ZIEGENHAIN

Approximately 80 miles of pipe have been laid between Enid, Okla., and Superior, Neb., as part of the 250 miles 6-inch gasoline pipe line system being built by the Cimarron Valley Pipe Line Co. to connect these points. The project is essentially an undertaking of the Champlin Refining Co. under the direction of H. H. Champlin, president of the two companies. It will supply an outlet for a large portion of the motor fuel production of the company's 16,000-bbl. plant at Enid and other refining connections are likely to be made. The line will pass through a large part of the natural marketing territory of the central Oklahoma and central Kansas refineries and some expansion of these marketing facilities will probably be undertaken following completion of the line.

Four crews of ditchers and welders are working on the remainder of the line, one working north out of Enid, one south out of Hutchinson, Kans., one north out of Hutchinson and one south out of Superior. The delivery of supplies and the general engineering work has progressed well up to schedule but dust storms over the past month have delayed welding operations. Recent rains and warmer weather promise to permit still faster progress to be shown over the immediate future. The company is also preparing for the installation of 10 large floating roof tanks at Hutchinson, Kans., and at Superior as storage.

Provisions for Extending Line

Since announcing the building of the line by Mr. Champlin early in March, there have been a number of rumors and suggestions that the new line may be tied into the Great Lakes pipe line system by means of a line from Superior to Council Bluffs, Iowa. This is a distance of 90 miles and would permit the pipe line transportation of gasoline from Enid to points as far east as Chicago. The probable basis for the assumption is that Mr. Champlin originally stated that in the design of the new system, provisions would be made for extending the line if future demands warranted that move. At that time the logical move appeared to be to extend the line to Sioux City, Iowa, a distance of 215 miles by way of Lincoln, Neb. This would give the Champlin company a pipe line outlet almost 100 miles north of the Great Lakes terminal at Council Bluffs in reaching the northern Nebraska and South Dakota markets. However, Mr. Champlin stated Saturday that this move was not contemplated now and that the only likely connection to be made with an existing pipe line system would be in the case of the Phillips Petroleum Co.'s gasoline line. The Phillips line extends from the company's refinery at Borger, Tex., to St. Louis, and the two lines will cross at a point near Wichita, Kans. If a decision is made to make such a connection, it will permit Champlin to pipe gasoline from Enid to St. Louis and receive the freight advantage on rail shipments originating in St. Louis bound for eastern points.

Central Kansas refiners including the Globe Oil & Refining Co., Derby Oil & Refining Co. and Dickey Refining Co. have considered making connections with the Cimarron Valley line but no definite announcements have been made to date.

Should several of the major refining companies in Kansas and western Oklahoma join in using the new pipe line facilities and should a connection be made between the Cimarron and Phillips or the Great Lakes lines eventually, the Mid-Continent refining area would be joined in a rather complete system of gasoline pipe line transportation that would permit Mid-Continent refiners to compete more readily with Chicago and Casper, Wyo., plants in the middle western territory.

Whether Champlin makes a connection with the Phillips or the Great Lakes the three will actually be linked into one system since the Phillips and Great Lakes are already connected at a point near Kansas City.

A suggestion that has a strong following among students of rail tariffs and oil markets and one which would further fortify the position of the Mid-Continent refining industry is that Phillips may extend its gasoline pipe line facilities eastward from St. Louis to some point in Ohio or possibly into Detroit, Mich. This would require a very substantial extension of the present facilities, however, the distance from St. Louis to Indianapolis being approximately 210 miles and from Indianapolis to Detroit 225 miles.

The extension of the Phillips lines to the east would not cause a duplication of pipe line facilities in that the Phillips line would run substantially south of the Great Lakes system and through consuming territory that could absorb the capacity of the line without entering into direct competition with products coming through the Great Lakes system.

While the extension of the Champlin, Great Lakes or Phillips lines is not to be considered likely in the immediate future, the basis for such consideration is evident and a substantial improvement in gasoline consumption with the removal of threats of federal interference in the operation of pipe lines will more than likely call for a resumption of detailed studies on the part of the principals.

East Texas Is Reported in Better Condition; Survey of Earthern Storage Made

By L. E. BREDBERG

FORT WORTH, Tex., Apr. 22.—Refining products shipments from the East Texas Field continue to slump, reports for movements for the week ending April 14 showing a drop of 41 cars under the previous week's report. The last report shows the following movement from the field via tank car:

	Cars	Gallons
Gasoline	511	4,160,600
Fuel oil	207	1,984,875
Casinghead gasoline	147	1,282,945
Distillate	102	839,575
Gas oil	46	341,135
Kerosene	50	414,206
Residuum	17	169,830
Topped crude	15	134,790
Naphtha	1	8,208
	1,090	

Of these shipments all but 36 cars went out under tenders. The 36 were shipped under court orders. Interstate shipments totaled 494 cars, intrastate shipments 245 cars and 351 cars went for coastwise movement.

Thirty-five refineries operating during the week ending April 19 handled a daily average of 45,550 bbls. per day, an increase of three plants operating this week, with runs to the plants showing an increase of over 4,100 bbls. per day.

During the week the Railroad Commission started to check all wells that are "dead" and those unable to make their daily allowable. Some operators may hold out information as they prefer to remain silent in regard to such wells on their leases, electing to take the allowable of a dead well from a flowing well and save the expense of rigging up, pumping or other artificial lift method on the dead well to make it produce.

Reports showing truck shipments from the field give a daily average of over 9,700 bbls. for April 17 and 18 with 12,575 bbls. being moved in that manner on April 16. However, these reports represent approximately only 80 per cent of the actual shipments, some refineries not reporting.

Some plant owners and operators continue to file applications for injunctions to move oil or refined products produced prior to December 10.

Another problem is the disposition of refined products abandoned in tank cars in the field and elsewhere in the district. A railroad company asked for a tender on fuel oil (to be used for fuel oil purposes only) after it had been loaded in tank cars on its line and later abandoned. Representatives of the company testified they knew nothing about the loading of the cars and that when an effort was made to collect demurrage the owners abandoned the oil to the railroad company.

H. A. Miles, in charge of the commission office at Kilgore, was to confer with the attorney general's department regarding such oil and refined products. If the railroad company is allowed to move the oil there will probably be much more such oil or refined products found in other "abandoned" tank cars that will have to be disposed of.

Field in Better Shape

The field is getting in better shape so far as overproduction is concerned. Daily average distribution for the week ending April 19 showed a total movement of 434,910 bbls., including runs to 35 refineries, whereas the daily allowable for the field was 441,500 bbls. as of April 18. Perhaps the allowable is too high, but apparently not when pipe line companies continue to solicit connections and seek more oil.

Third grade gasoline prices were raised 1 cent per gallon in Dallas this week. This is an encouraging note, intimating that truck movements to the larger centers have fallen off during the past week. Gasoline prices were strengthened in the field this week and are expected to increase.

Earthen Storage in East Texas

In a survey of open storage for crude oil in the East Texas Oil Field prepared under the direction of Charles F. Roeser and reported to the Senate Subcommittee on Mines and Mining, it was stated there are 7,258,500 bbls. of open pit capacity in the field and it is estimated these pits now contain about 2,795,300 bbls. of crude.

The distribution of these pits is very general through the field as indicated by the following recapitulation:

District—	Estimated capacity (barrels)	Estimated quantity (barrels)
Gladewater	2,694,000	1,380,500
Overton	251,500	39,000
Friar Switch	804,000	45,500
Kilgore	1,366,000	716,000
Arp	637,000	217,000
Miscellaneous	1,506,000	397,300
	7,258,500	2,795,300

A check of the pits in the various districts based upon approximate time they have been in use is given in the following table:

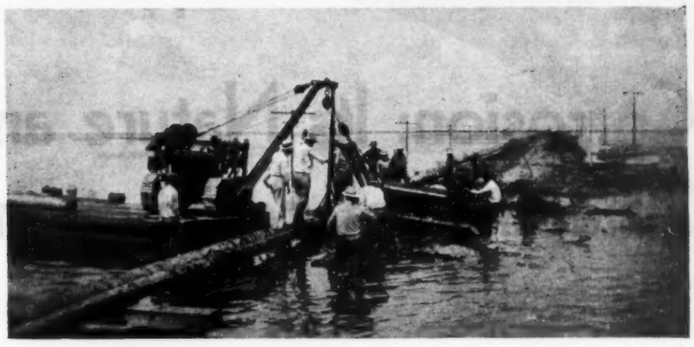
RECAPITULATION

District—	New	Months 1	3	6	9	12	18	24	Total
Gladewater	5	3	1	6	5	24	2	5	51
Overton	0	0	2	1	0	3	0	2	8
Friars	0	0	0	0	0	0	0	3	3
Kilgore	5	3	2	8	5	12	3	2	40
Arp	2	0	0	4	3	2	0	1	12
Miscellaneous	0	3	4	1	6	2	2	2	20
	12	9	9	20	19	43	7	15	134

These pits have been built and filled over a period of the past two years and it is understood many are filled with fresh crude oil removed from the East Texas pool. This form of handling involves three forms of waste, excessive drop in formation pressure due to rapid withdrawal of the oil, seepage of the oil into the ground and evaporation of the lighter fractions into the air. If the practice followed in handling Smackover crude during the boom days is followed in treating this oil, after it becomes cut with rain and filled with dirt from the atmosphere, the total loss will exceed 10 per cent of the crude removed from the ground and the principal item lost

(Continued on Page 32)

Unusual Difficulties in Laying Pipe Lines in Gulf Coast District



Another difficult pipeline laying job on the Gulf Coast. Laying line along fill leading in a bay at Harbor Island. The tractor with the winch for raising and lowering the line is moved along the line on a barge

By NEIL WILLIAMS
Gulf Coast Bureau, The Oil and Gas Journal

HOUSTON, Tex., Apr. 22.—Possibly not in any other part of the country has such a diversity of difficult and unusual conditions been encountered in pipe line laying as on the Gulf Coast. Laying of lines in this district in many instances has taxed the ingenuity of pipe line companies, which have been forced to various expediencies in completing some of their projects.

Characteristics of the coastal country are expanses of almost impenetrable swamps, tidal marshes, numerous waterways, many of them navigable, and wide stretches of open water which frequently must be crossed in the laying of lines. The remaining country is generally low and flat, some poorly drained and subject to overflow, all adding to the handicaps of pipe line laying.

Each of the many different conditions under which pipe lines have been laid on the Gulf Coast has called for the overcoming of different problems and obstacles and altogether they have involved the employment of every method and means which could be devised to obtain their accomplishment.

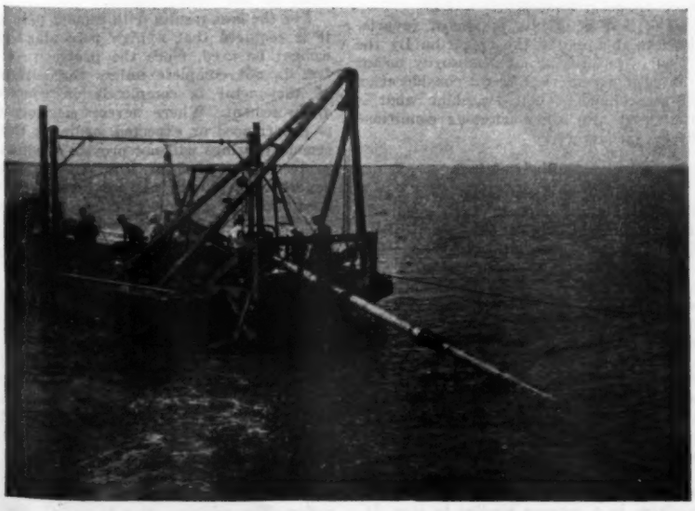
Laying of lines across some of the extensive swamp areas has been accomplished only with extreme difficulties. Many of these swamps consists of almost bottomless bogs, thickly overgrown with heavy timber and underbrush, and sloughs containing masses of stumps and logs buried deep in the mire. Clearing right of way through such areas is a problem in itself. After cutting of the underbrush and timber either by hand or dynamite, steam-driven excavators have been used in some cases to scoop the logs and stumps aside. Where the surface would not support the machinery, equipped with special crawlers, obstructions have had to be removed by ox teams or even by man power.

Ditching Difficulties

Miring down of equipment and animals used on such jobs is a common occurrence. In the use of ditchers and other machinery special crawlers usually have to be provided and on these extensions, consisting of long heavy timbers extended out the side, are bolted to increase the width of the support. Frequently it is impossible to use machinery at all and hand labor has had to be resorted to exclusively.

Ditching through swamp country also has been all but impossible in most instances. The mucky and water covered soil usually caves as fast as dug out. On some jobs as fast as a trench was dug out wooden retaining walls or cribbing had to be built up to prevent caving until the pipe could be run in. Through other sections where it was possible to move in a steam dredge, trenches have been dredged out. In such instances gasoline motor-driven pumps mounted on pontoons have been used to follow the dredges and pump the water and muck from the ditches. Such practices have been adaptable in ditching through rice fields.

Dynamite also has been found advantageous in ditching in areas in which it was impossible to use ditchers or dredges and where work by hand was not feasible. By this method, dynamite charges (ordinarily four sticks to the hole) are placed at intervals or around 18 inches and fired at rapid succession, blasting a trench into which the pipe can be strung.



Laying gas line across Galveston Bay. This is a type of open water pipeline laying job

Stringing and laying of pipe under these conditions also constitute a difficult undertaking. Along some of the drier portions of right of way, narrow gauge tracks can be laid, using cut timber for ties, for the movement of pipe and transportation of men and equipment through the swamp. However, in the real swamps, the pipe has to be dragged through on rollers or skids of some kind by mule or bull teams, and frequently these become mired.

Floating in Pipe

Through right of way entirely covered with water the pipe usually has to be, or can be floated in. By this procedure the pipe for such sections is welded on higher ground at the edge of the swamp and as section by section is welded on, the pipe, on floats, is dragged across with winch lines on anchored tractors in a fashion similar to some river crossing jobs.

Ordinarily back filling is not necessary on swamp pipe line projects. The pipe can be permitted to find its own bottom and because of the watery and unstable soil the ditch soon fills up naturally.

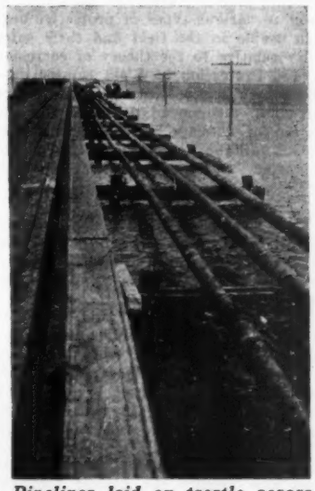
Welding of lines in swamps usually has been done by portable units mounted on skids where the ground permitted, and mounted on pontoons through some of the worse sections. The generator and welding units themselves can be placed on light wagons which can be rolled easily onto skids or pontoons and fastened readily when conditions necessitate.

Pipe line work in the tidal marsh areas sometimes is even more difficult than in the swamps. Such areas generally are inaccessible for machinery of any kind, and part of the time are covered with tide water. Most of the work has to be done by hand, and in ditching dikes usually have to be thrown up to hold out the water while small pumps, moved along on pontoons, skids or floats of some kind, pump the water out so ditches can be dug.

In extremely marshy sections no efforts are made to provide ditches; instead the pipe is laid across these stretches as in river crossings or in laying pipe across over open water beds and then permitted to find its own bed. In other places it has been advisable not to run the pipe on the surface or in trenches but rather to elevate it above the level of the tides. To do this the pipe is laid on trestles built on piling driven in the marsh with cross bracing and beams on which the pipe rests. A trestle job is shown in an accompanying picture. These trestles sometimes extend for miles across marsh districts. Lines laid in this fashion are easily accessible for reconditioning. Elevation of the lines above the marshes also is advantageous in some cases in that the salt marshes are highly destructive and with the lines raised on trestles some of this damage is eliminated.

Across Open Water

A number of pipe lines, both oil and gas, have had to be laid across bays or other wide stretches of open water. In some cases these have been laid on the bottom, as in a river or other similar crossing, while on projects the lines have been placed on trestles. The water across these bays usually is comparatively shallow so that the work of laying the lines is not a particularly involved undertaking. The trouble in several instances has been that the lines have been too shallow and have been subject to be struck by boats during periods of very low tide. On a couple of lines which the Texas Co. stretched across Terrebonne Bay, one 15 miles of 4-inch from Bay St. Elaine Dome to Lake Barre, and the other 7 miles of 3-inch line from Bay St. Elaine Dome to Lake Pelto, this happened on a number of occasions. The company operates a large fleet of boats, consisting of tugs, luggers, barges, speed boats, etc., in carrying on the development of a group of



Pipelines laid on trestle across bay at Harbor Island, another type of pipeline job across open water. The pipeline conveying trestle follows the Harbor Island causeway

maritime and marsh located fields in southern Louisiana along the coast of Terrebonne Parish, and in the movement of these boats hauling supplies, materials, oil and employes, the boats frequently struck the lines causing breaks. The lines, which are not in use at this time, were put down to supply fuel for operations at Lake Barre and Lake Pelto, two fields located out in Terrebonne Bay, from a couple of gas wells at Bay St. Elaine, another field.

Laying of these lines was accomplished from barges, the pipe being carried on these barges and lowered off the back of them as the sections were connected in place. The lines rest in from 6 to 15 feet of water.

Special Barge Cradle

Texas Cities Gas Co., a subsidiary of the Lone Star Gas Co., has two parallel 8-inch lines across West Galveston Bay from Virginia Point on the mainland to Galveston Island which are laid on the bottom. These supply natural gas to the

(Continued on Page 87)

Corrosion: Its Nature and Effect on Selection of Production Equipment

By W. ST. M. E. CRAKE
Shell Petroleum Corp., Houston, Tex.*

Synopsis

The author presents the paper in four main sections: (1) Theory of Corrosion—This section is an effort to describe in an abbreviated manner the accepted facts relative to corrosion in the light of the electro-chemical theory. This theory is generally accepted as being correct by modern authorities.

(2) Field Corrosion — Preliminary Data—This section deals with the preliminary information required upon entering a new field in order to make decisions as to the class of equipment to be used and the methods of installation with reduction of corrosion as the focal point.

(3) Protective Coatings—Section (3) presents some remarks and data with respect to various types of protective coatings usable in the field and their suitability relative to the theory of corrosion.

(4) Protection of Field Equipment—The fourth section gives various suggestions and recommendations for the protection of tankage, derricks, substructures, buildings, casing, tubing, sucker rods and pipe lines for various field services.

The main purpose of this paper will be to present a brief synopsis covering oil field corrosion—the types encountered and their influences upon the selection and installation of equipment.

The corrosion problem and its effect on operating costs is receiving more prominence and is becoming more important as time passes. This is largely due to the fact that methods of producing oil are rapidly changing—in fact, have already largely done so—from more or less rule of thumb methods to scientific and business methods, while market conditions now require the utmost foresight in order to enable operations to remain profitable. The old adage which states that "An ounce of prevention is worth a pound of cure" is apt and very much to the point where corrosion is concerned.

Theory of Corrosion

The generally accepted modern theory of corrosion at ordinary atmospheric temperatures is the Electro-Chemical Theory. This seems to explain satisfactorily the great majority of troubles encountered in the field.

Since a complete explanation of the above in all its ramifications would fill a volume, the writer does not propose to discuss it in any detail in this paper. Basically, however, the Electro-Chemical Theory indicates that probably all atmospheric temperature corrosion is electrolytic. This ties in with and is in line with modern ionic theories.

The following facts are accepted relative to corrosion:

(1) Iron will not corrode at normal temperature without the presence of moisture.

(2) The presence of oxygen is necessary, if appreciable corrosion is to take place in ordinary water. Under most corrosive conditions, oxygen, being a depolarizing agent, will accelerate the action due to the removal of hydrogen (see No. 4.)

(3) Decrease in the pH value of an electrolyte, i.e., the hydrogenion concentration or acidity—increases the corrosion rate over that in neutral solutions, and alkaline solutions decrease rates of corrosion below neutral solutions.

(4) Hydrogen is evolved in many electrolytic actions.

(5) Corrosion of iron is rarely uniform over an entire surface.

(6) Dissimilar metals in contact with each other, and with an electrolyte, tend to cause accelerated local corrosion.

(7) In an electrolyte, material will flow from the more corrodible material to the one less corrodible, i.e., will be dissolved from one and tend to be deposited in the other. The intensity of this action and the direction of flow will be governed by the position of the two metals in the electro-chemical series and by the concentration of the electrolyte.

The direction of ionic flow is from the positive electrode, or anode, to the negative electrode, or cathode.

Field Corrosion—Preliminary Data

In view of the above accepted facts, let us examine the problem of selection of field equipment for any particular area with respect to these facts.

In entering a new field, information on the following should be gathered:

(1) Atmospheric Moisture Conditions—These must be considered with respect to installation of surface equipment and its protection against exterior corrosion. In the Gulf Coast and other humid areas, corrosion will be serious from this factor. In West Texas and parts of Southwest Texas this is almost negligible in comparison.

(2) Possibility of Encountering Corrosive Gases—These will effect both surface and subsurface equipment handling oil, water and gas. The effect on surface equipment will usually be most serious, due to the presence of oxygen.

(3) Soil Conditions—These will affect exteriors of pipe lines and tank bottoms to a varied extent and correlate, in most cases, with the effects of atmospheric conditions, particularly moisture content.

(4) Probable Productive Life of Field—This will affect the choice of equipment in that for fields with short expectant life, less corrosion resistant equipment may be installed with this short life in view. This may be, however, under some conditions, a short-sighted policy. Since the salvage value of equipment is greatly dependent upon the quality and sturdiness of the equipment originally installed, due consideration should be given to probably further use elsewhere later on.

(5) Suitability of Second-Hand Materials—The fifth, while not vital during the incipient stages of development, is a factor which should be carefully watched. There is no economy in installing equipment which it is realized will be a potential cause of trouble and high costs under corrosive operating conditions to which it is to be subjected.

Static and Moving Equipment

Somewhat different treatment must be accorded to equipment which is moving than to that which is static. The former consists mainly of sucker rods and tubing, which become subject to "corrosion fatigue," as it has been termed. Under loads—particularly heavy and partially reversing loads—it has definitely been proven that steels will have a very greatly reduced fatigue resistance when operating in corrosive fluids.

Static equipment may be assumed to include such items as tankage, pipe lines, derricks and buildings.

Protective Coatings

If we assume that the electro-chemical theory holds good, and every indication seems to point to its correctness, the problem of protection becomes mainly electrical. In order to prevent electrolytic action, insulation of the iron or steel against corrosive influences is necessary, and this can be done by a protective coat of some suitable material.

Paints

To be effective, a paint film should be applied to a clean and dry metal surface. It is a waste of a coating to apply it on a rusty (corroded) surface, since corrosion continues to act under the coat. The oxide (rust) and iron with the absorbed moisture in the oxide acting as an electrolyte, comprises a complete system for continued corrosion and result in final blistering and cracking of the paint film, due to the gases evolved by the electro-chemical action and increased volume of oxide over the iron. For the best results, a good priming coat is necessary to bond the protective coat to the surface to be protected.

The best of paints is almost invariably the cheapest in the long run. By the "best of paints" is not necessarily meant the most expensive. Careful consideration of the conditions will determine what is the "best" for the particular conditions to be encountered.

Metallic Coatings

Zinc is the most commonly used metallic coating and has particularly good protective properties. This is due to the fact that, from its position in the electro-chemical series, it is anodic to steel and, therefore, in places where steel is exposed, will tend to protect it. This will, of course, be at the expense of the zinc and, under extremely severe corrosive conditions, zinc coatings are not at all satisfactory. This is due to the fact that penetration or attack on the zinc is so rapid that the coat has not an economical life, though the zinc, while intact, naturally protects perfectly the iron surface.

Aluminum is also anodic to steel, but cannot normally be combined with steel surfaces in a manner similar to zinc. It, therefore, becomes classed more as a paint.

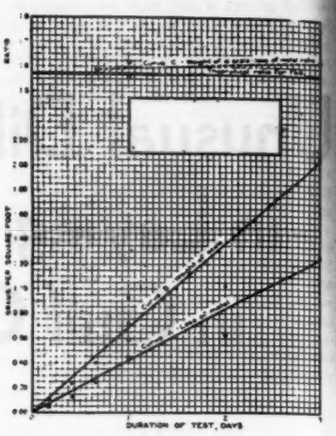


Fig. 6—Progression of gaseous H_2S corrosion of steel with time

Legend—Concentration of H_2S in gas 0.27% (170 grains per 100 cu. ft.). Concentration of oxygen in gas 2.0%. Humidity of gas—saturated. Temperature of gas 100° F. Pressure of gas—atmosphere.

A novel method of applying an aluminum coat has come to the author's attention and this apparently results in bonding of the aluminum to the steel. Aluminum powder in a special vehicle is painted onto a clean, dry steel surface without the use of any primer. After drying for half an hour, the surface is "brushed" with a flat oxy-acetylene flame, very much in the same manner and at the same rate as paint would be put on with a spray gun. The resultant appearance is that the steel has been aluminum plated.

Cement Coatings

Cement coatings have very desirable characteristics for the protection of iron, generally attributed to the alkalinity of the cement. This fact enables a cement coating to protect steel in spite of pin holes in the coatings, which, with cathodic metallic coatings, result in accelerated serious pitting.

It is well known that rusty reinforcing bars placed in concrete may be removed after a period of time in a clean condition. Cement coatings may, therefore, be placed on wet rusty metal and still protect against surface corrosion. Cement and steel have practically the same coefficient of expansion and, consequently, where the poor heat conductivity of the cement does not play an important part and cause internal strains in the coating, thin films of cement are not likely to crack and peel.

Thick coatings of cement will protect as long as mechanical operating conditions do not cause failure.

For the best results with cement paints, it is required that a high percentage of cement be used, since the protective effect is not complete unless the surface of the metal is completely in contact with cement. Where severe electrolysis is experienced or expected, ordinary thin cement coatings will not provide adequate protection to steel or iron. Under such conditions, as with all coatings, special consideration must be given to the problem.

Protection of Field Equipment

(1) Tankage—The protection of tankage against the ravages of corrosive action may be divided up as follows:

(1) External.

(2) Internal.

Each of the above may be subdivided into: (a) Decks; (b) Side sheets; (c) Bottoms.

External Protection—(a) Decks and sides: The problem of protecting both decks and side sheets is similar in the majority of cases to the protection of any steel work against atmospheric corrosion. The problem may be complicated by the presence of hydrogen sulphide gases. However, the concentrations of

---

*Before Southwestern District, A.P.I., San Antonio, Tex., April 25. Author's title: "Corrosion: Its Nature and Effect on Selection and Installation of Production Equipment."

LINE UP WITH TUBE-TURNS!★

TO MAKE a good, strong joint, welding fittings must line up *exactly* with both the inside and outside diameter of the pipe . . . Welding fittings must be lined up with the pipe from the outside. Fittings with non-uniform walls may match either the I. D. or the O. D. of the pipe. *They can't match both.* If they match only in O. D., a shoulder is formed on the inside, restricting flow and accelerating corrosion. If they match only in I. D., correct alignment is extremely difficult and erection is slowed up. ¶ Tube-Turns line up perfectly with the pipe—*match* it at *all* points . . . Result: Low welding costs, strong joints, minimum pressure-loss, long life . . . That's why more people *line up with Tube-Turns* than with any other fittings for pipe welding.

¶ Tube-Turns, *Incorporated*,
Herald-Post Building,
Louisville, Ky.

★ **The word "Tube-Turn" is NOT a general name for welding fittings. Tube-Turns are THE seamless fittings having uniform wall-thickness at all points, true circular cross-section, uniform radius of curvature and smooth inner walls. Made ONLY by Tube-Turns, Incorporated.**

this gas in the open are usually so low as to cause little effect.

Cement paints are satisfactory for this class of service.

Galvanizing of tankage is an excellent protection for extreme conditions of atmospheric corrosion. Due to the better galvanizing properties of wrought iron this may be used in extreme cases of corrosive atmosphere. Ordinary paint coatings are, however, satisfactory, if properly applied and of the right type.

The contings of paint as received on tanks from the factory, are usually inadequate for protection. The oil industry would do well to purchase tanks of black steel for lease use and apply coatings from the primer to the finish on the job. Too many cases are visible where failure of tankage is due to inadequate original protection.

Two good rules for the protection of any steel work are:

(1) Install a carefully selected protective film.

(2) Keep it clean.

(b) Tank Bottoms—Tanks should be set on well drained ground and, if set on corrosion inducing soil, should be coated with asphalt or set on a wood mat. Cleanliness and careful piping away of water, B. S. and oil will greatly reduce risk of corrosion.

Internal Protection

Internal protection of tankage presents more difficulty than external. This is in view of the fact that there are present three zones, vapor, oil and water, which require rather different treatments. In the vapor space, there is atmospheric corrosion—usually accelerated by the presence of salt and excessive moisture. In sour oil areas, this acceleration is greatly increased due to the presence of hydrogen sulphide. In sweet oil areas, decks and vapor spaces (usually the top one to two feet of the tank) do not give severe trouble.

In sour oil territories, very severe troubles have been experienced. A study of the attached charts will show that the presence oxygen is the main cause of this trouble. In order to protect the vapor space, it is essential to exclude air (oxygen) to the fullest extent possible. This can be done by means of equalizing lines between tanks to take the vapor from the tanks being filled to the tanks being run. This has proven extremely beneficial in the field. Exclusion of oxygen is advantageous in any field from the point of view of safety, since explosive mixtures are frequently found in tanks which are able to breathe in air while emptying. In sour oil areas, spontaneous combustion has occurred caused from the oxidation of iron sulphide. Table 1† is of interest to show the composition of the gases contained in tanks during various operations:

sides—reinforced with felt, sawdust, et cetera, has proven excellent. Care should be taken to see that asphalt is not used for wash tanks where high temperatures are to be held. Various manufactured compounds are on the market which perform satisfactorily.

TABLE 1.—ANALYSIS OF HYDROCARBON GASES PRESENT IN THE VAPOR SPACES OF THE TANKS UNDER VARIOUS WORKING CONDITIONS, TEST TANK BATTERY, NEAR BORGER, TEXAS

	Bradenhead gas used for agitation	Flow tank during agitation	Stock tank emptying	Stock tank empty	Stock tank filling
	1	2	3	4	5
Hydrogen Sulphide %	0.10	0.10	0.00	0.00	0.05
Carbon Dioxide %	0.53	0.55	2.12	0.42	0.55
Oxygen %	0.17	1.64	17.62	20.01	8.02
Methane %	93.39	73.43	0.00	0.00	19.12
Ethane %	0.00	13.79	7.56	13.02	33.75
Nitrogen %	5.81	10.49	72.70	66.55	38.51
Total %	100.00	100.00	100.00	100.00	100.00

†From United States Bureau of Mines Report of Investigations 3666.

It is highly probable that the use of adequate equalizing lines supplemented, if possible, by a positive outside supply of gas under pressure to insure an ample supply to the vapor space to effect complete exclusion of air, will give corrosion rates in sour oil vapor spaces similar to those experienced with sweet oil. The sulphurous acid formed by the solution of H_2S in water is so weak that it is hardly a factor.

In spite of the above facts, it is good insurance to coat the vapor space. Flexible coverings of plastic tank surfacer and high melting point grease have given excellent protection. The steel work supporting the deck should be greased before the deck is installed in order to give an unbroken film on all portions of steel exposed.

Very little trouble has been experienced in any area with side walls of tanks above the water zone, even in wash tanks handling large volumes of water.

Bottoms again present serious problems, especially in sour oil. Corrosion of bottoms is almost invariably electrolytic and is due to scale and encrustations falling from decks. This will settle on the bottom in the water and, since oxides and, in particular, sulphides, are strongly cathodic to steel, pitting will occur wherever scale rests on the bottom. As will be seen, if the deck is protected, all we have to fear are the particles of scale which enter from the well through the filling line.

Protection of the bottom requires an insulator, such as asphalt. An asphalt coating, approximately one inch thick on the bottom and one foot high on the

Cement will probably not be at all satisfactory unless a heavy layer be used and even then is not too satisfactory, as it cracks from expansive strains.

The cost of completely protecting the interior of a low 500-bbl. tank by any of the above outlined methods will be between $30.00 and $40.00. This is sufficiently cheap to make it well worthwhile and advisable in all territories. Bottom protection is advisable in every installation. In areas in which paraffin is formed on the bottom and sides of the tanks, very little trouble has been experienced.

Wood tanks have proven very satisfactory as far as their resistance to corrosion is concerned. Care must be exercised to see that dry rot, hoop corrosion, and other causes do not produce mechanical failures. Galvanized wrought iron and steel tanks have given good results, as compared with painted steel, but no direct comparisons are available with black tanks treated as outlined above.

Derricks, Substructures and Walking Beam Assemblies

In the writer's opinion, galvanized equipment is worth the extra cost in every instance.

In dry areas, such as West Texas, painted equipment is perfectly satisfactory in so far as the loss of metal is concerned. However, with the interchange of materials between different areas, it is probable that during the life of a piece of equipment it will finally end up in some area where paint is unsatisfactory. It is impossible to repaint a derrick satisfactorily while erected. This is due to the fact that paint will not penetrate satisfactorily between joints and corrosion proceeds in the space around bolts and joints to the great detriment of the strength of the derrick.

Painted derricks should always be heavily primed before erection and the final coat applied after erection. Paint films are invariably damaged during erection and, in this respect, galvanizing again stands out since the zinc coating is mechanically very strong.

The cost of about two re-paint jobs on a derrick will pay for galvanizing and the latter will give better protection.

(3) Buildings

The frames of steel buildings, which are usually protected from direct action of the wind and rain, should be painted or galvanized, according to conditions. Cement base coatings are particularly adapted to this class of equipment.

Cement base coatings have given outstanding results on dwelling houses, in many cases. The bond obtained by cement on wood indicates that less peeling and cracking results than with ordinary paints. The wood is also free to "breathe" under the coating and adapt itself to atmospheric conditions and requirements.

(4) Subsurface Equipment

(a) Casing—Due to the fact that the casing in a well is one of the largest expenses and its preservation intact vitally important to the producing of the well, it is important to review the factors involved in completing a well.

In many places, chemicals are being used to condition drilling fluids. These chemicals consist of acids and alkalies which are used to control the collodial content of the fluids involved.

In view of the above, it should be borne in mind that acidity or hydrogen-ion concentration increases corrosion, while an increase in pH decreases corrosion. With this in mind, it can be seen that when a string of casing is to be run, it is strongly advisable to condition the drilling mud before running the pipe so that the fluid directly in contact with the pipe for the life of the well should be alkaline or at least neutral.

If the fluid is of high salinity, every possible means should be taken to reduce this to a minimum, in order to eliminate as much of the electrolytic action as is possible. The cement by means of which the pipe is set will, as a rule, give good protection to the lower end, providing that it surrounds the pipe completely.

(b) Screens — Wrapped or button screens are made with wire wrappings or buttons of various metals installed on pipe of several kinds, such as wrought iron, steel, alloy steel, brass, nickel, et cetera.

Since the electro-chemical theory of corrosion has clearly demonstrated that contact of dissimilar metals in an electrolyte result in corrosion varying in intensity with the strength of the electrolyte and the position in the electrochemical series of the contacting metals, it will readily be seen that the corrosion of screens is so complicated that space cannot be taken up at this time to discuss the subject fully.

(c) Tubing—Corrosion of tubing is usually electrolytic and, where severe cases of this are experienced, the use of galvanized tubing is usually profitable. Due to the better galvanizing qualities of wrought iron and the fact that tubing is under heavy cyclic loading on pumping wells, this type of tubing has proved advantageous. The latter tubing has superior fatigue and corrosion resisting characteristics to steel under certain conditions, but its lesser strength must be taken into account in relationship to the load that will be imposed. Due to the anodic effect of zinc, it has been noticed that the installation of galvanized tubing will frequently stop severe rod corrosion, to the detriment of

(Continued on Page 85)

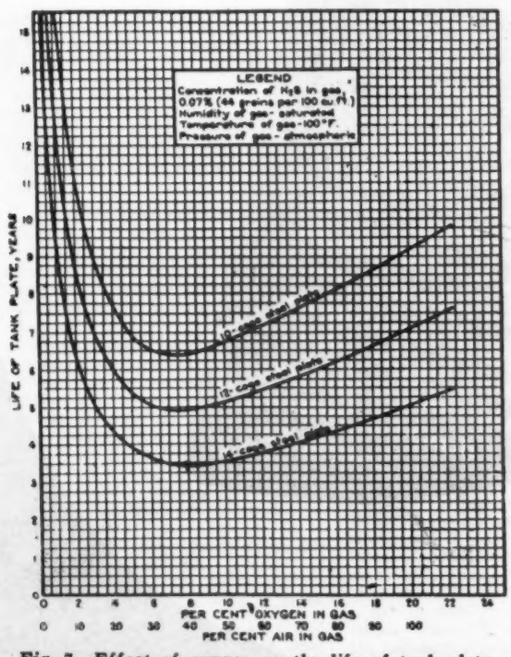

LEGEND
Concentration of H2S in gas, 0.07% (44 grains per 100 cu ft)
Humidity of gas - saturated
Temperature of gas - 100°F.
Pressure of gas - atmospheric
LIFE OF TANK PLATE, YEARS
PER CENT OXYGEN IN GAS
PER CENT AIR IN GAS

Fig. 7—Effect of oxygen on the life of tank plate under gaseous H_2S conditions. (Based on 1-day corrosion tests.)

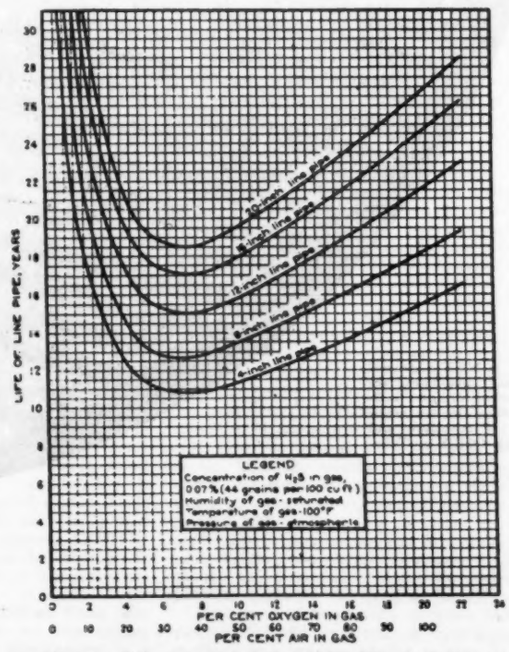
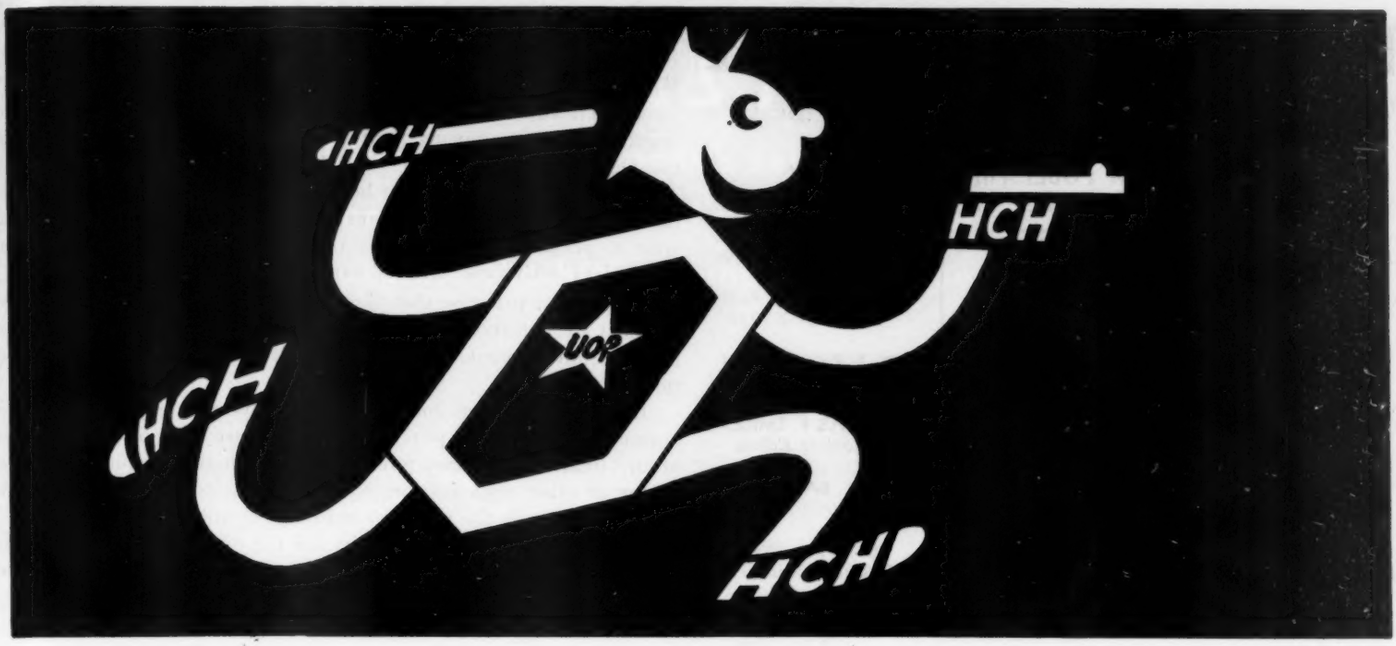

LEGEND
Concentration of H2S in gas, 0.07% (44 grains per 100 cu ft)
Humidity of gas - saturated
Temperature of gas - 100°F
Pressure of gas - atmospheric
LIFE OF LINE PIPE, YEARS
PER CENT OXYGEN IN GAS
PER CENT AIR IN GAS

Fig. 8—Effect of oxygen on the life of line pipe under gaseous H_2S conditions. (Based on 1-day corrosion tests.)



You can take the gumbugs out of cracked gasoline with sulfuric acid but you take out antiknock value at the same time and some of the gasoline too Unsaturated hydro-carbon molecules gang up with oxygen molecules from the air and turn into gum-bugs—if they get a chance

Universal Liquid Inhibitor is a chemical cop that keeps the gumbugs from forming—saves all the antiknock value and all the gasoline

And saves acid cost

If you would like to know what Universal Liquid Inhibitor will do for you, just send us samples of your cracked gasoline The sooner you do, the sooner you can forget your gum troubles

Universal Oil Products Co
Chicago Illinois

Dubbs Cracking Process
Owner and Licensor

Copyright 1935, Universal Oil Products Co

THE OIL AND GAS JOURNAL

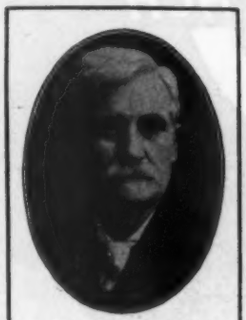
Producing Refining Natural Gasoline Pipe Line

Published weekly by

THE PETROLEUM PUBLISHING COMPANY

114-16 West Second Street, Tulsa, Oklahoma

P. C. LAUINGER, *Pres. and Gen. Mgr.*
ANDREW M. ROWLEY, *Editor*
W. T. ANDERSON, *Managing Editor*
JAMES McINTYRE, *Consulting Editor*
C. O. WILLSON, *Refinery Editor*
L. G. E. BIGNELL, *Petrol. Engr. Editor*



Established 1910 by PATRICK C. BOYLE

E. KLAPPENBACH, *Advertising Manager*
C. K. FRANCIS, Ph.D., *Technical Editor*
W. T. ZIEGENHAIN, *Associate Editor*
THOMAS F. SMILEY, *Associate Editor*
M. F. BALDWIN, *Circulation Manager*
S. H. ROURKE, *Business Manager*

Branch Editorial Offices

CANADA, Victor Lauriston
DENVER, Tolbert R. Ingram
FORT WORTH, L. E. Bredberg
HOUSTON, Neil Williams
LOS ANGELES, L. P. Stockman
NEW YORK CITY, C. O. Willson
MICHIGAN, Paul A. Elliott
OIL CITY, Robert C. Conine
CHICAGO
PITTSBURGH
MINDEN, LA., J. R. Crumpton
TOLEDO, George A. Whitney
WASHINGTON, Hugh D. Mallon

Branch Advertising Offices

NEW YORK CITY, C. L. Cain
CHICAGO, C. R. Farmer
CLEVELAND, Howard Markt
HOUSTON, Paul T. Putnam
LOS ANGELES, J. H. Tinkham

(For representatives' complete addresses see contents page)

Member, Audit Bureau of Circulations

"Ain't Seen Nothin' Yet"

Harassed and bedeviled as it has been by legislation, taxation and regulation, the oil industry, in the language of the street, "ain't seen nothin' yet" compared to what would be in store for it under the new N.R.A. bill now before Congress.

It is the evident purpose of the petroleum administration not only to continue but to extend and tighten and double-rivet its control of the industry from the lease to the gasoline pump. Every clause that has ever been questioned is now flanked and buttressed with legal phraseology calculated to withstand the keenest judicial scrutiny.

The most scrupulous care has been taken to see that not only is there no other missing section but that there are no missing syllables. Congress, as well as the courts, is now in the mood to demand specifications instead of generalities, and is insisting upon definite itemization rather than poetic promises.'

This has forced the petroleum administration into the open. Mr. Ickes, in his latest pronouncements, declares bluntly:

"There is ample authority in the Federal government to balance production with the needs for oil and its products, and to provide for the orderly development of new fields. The petroleum code is a temporary measure and the problem is a permanent one. The code lacks the desirable express legislative sanction of the Congress itself, such as would be contained in an act of Congress relating directly to the problem. The enactment by Congress of legislation to co-ordinate the production and consumption of oil is important and urgent."

The specific legislation the petroleum administration seeks is baldly stated in Section 3 of the new N.R.A. measure, which states that "devices for controlling prices, production or distribution may be applied" to "natural resource industries, (such as, among others, coal, oil or gas.)"

In the light of that provision oil men can not be deluded by soothing suppositions about the beneficent paternalistic purpose of the petroleum administration. They are plainly only another case of "'Come into my parlor,' said the spider to the fly."

The industry has the choice of one of two alternatives; to stand up for its independence or to hold out its hands to be manacled, not temporarily, but permanently as Mr. Ickes frankly says.

The oil administrator has not concealed his contempt for state regulation and has openly flouted the industry. He wants rigid and complete Federal control, not for the emergency, but for all time.

The new recovery bill has been drafted to that end. It has been carefully designed to escape constitutional objection and at the same time to perpetuate and enlarge the authority of the administration over every activity of the industry.

Despite the pretense that the N.R.A. was to provide for self-government by industry, in the case of oil the Planning and Coordination Committee would be restricted by law to a purely advisory function.

In contrast to the enlargement of governmental administrative authority Section 2(c) provides that: "There shall be no delegation of any final discretionary power to any such (code) authority, committee or other organization, which is composed in the whole or in part of persons in the trade, or industry, or sub-division thereof."

This envisages a code authority for the oil industry composed entirely of persons having no bearing, direct or indirect, upon the industry. And it must be remembered that this outside code authority would be empowered to levy code assessments within the oil industry.

As it stands the new recovery bill would embalm the most controversial features of the original act by specifically legalizing them. The supposed restriction of the law to interstate and foreign commerce is nullified by the addition of the omnibus clause embracing industries that "so substantially affect interstate or foreign commerce that codes are necessary."

Section 7(a), the controversial labor section, remains unclarified. Section 12 would allow the Petroleum Labor Policy Board to assess damages against oil companies in cases involving code wages and hours.

It is difficult to believe that Congress, in the light of Supreme Court pronouncements and the rising tide of public opinion, will swallow any such legislation, particularly the part of Section 3(a) which authorizes price fixing and the control of the production and distribution of oil, coal and gas.

But the determination of the petroleum administration to jam through a Federal oil control bill is clear. The question is whether it has enough influence to have it put on the list of "must" legislation.

Mr. Roosevelt has been reported as favorable to legislation authorizing an interstate compact. President Byles of the American Petroleum Institute told the Senate subcommittee that this, with authority to control imports and a fact-finding body such as the Bureau of Mines, and the Connally law to regulate interstate shipments, is all Congress can or should do about the oil industry.

The cry about waste and conservation of natural resources parroted by the petroleum administrator is out of date. The producing industry, through its own efficiency and co-operation and with the assistance of state regulation, (which can be made completely effective by the interstate compact,) is solving the conservation problem.

The industry today is thoroughly awake to the economic waste of overproduction and is taking every precaution to stop it just as it did in eliminating the physical wastes of bygone years which Mr. Ickes likes to picture as still going on.

Past predictions of speedy exhaustion of our petroleum reserves have been proved ridiculous by discoveries. On the other hand when there has been a need for oil the oil man has always found it.

The answer to Ickes' Jeremiads of desolation is found at any filling station where the public continues to be served with an indispensable product at a price which has been the lowest of all commodities before, during and since the war.

That also is the answer to any plea for Federal control of production, distribution and prices in the oil industry. Public experience with the government in business is a sufficient warning. Deficits are met by increased taxation. Taxation now takes 40 per cent of the price the consumer pays for gasoline.

. . in FRANCE

during 1935 a major oil company's second refinery will commence operation of a cracking unit under a Gasoline Products Company license

LICENSES granted under United States and Foreign Patents for: Cross • de Florez • Holmes-Manley • Tube and Tank Cracking Processes and Combination Cracking Units.

Licensing Agents:
The M. W. KELLOGG CO.
225 Broadway · New York
or its
European Representative:
Compagnie Technique des Petroles · 134 Boulevard Haussmann · Paris, France

- **Economic conditions make it essential for a refiner, when considering an investment in cracking equipment, to select an experienced licensing organization—one whose service is comprehensive enough to secure the benefits of the latest designs, methods and equipment.**
- **Gasoline Products Company by coordinating the technical data of several major refinery organizations is in a position to design combination cracking units adapted to the individual requirements of the refiner.**
- **A constantly increasing number of refiners are availing themselves of this broad and comprehensive service.**

GASOLINE PRODUCTS COMPANY

INCORPORATED

11 COMMERCE STREET · NEWARK, NEW JERSEY

NEWS FROM FOREIGN LANDS

MEXICO

Based on reports for January, there are now 70 companies and individuals in Mexico which have crude oil production. These operators in January produced 2,894,167 bbls. (460,122 cubic meters) of crude oil or a daily average of 93,360 bbls., according to government reports.

Compania Mexicana de Petroleo "El Aguila" (Shell) had 50 per cent of this production in January with a total of 1,426,547 bbls. This company is the largest refiner in Mexico with three operating plants and is also the largest distributor of products. The company controls other production through subsidiary or affiliated interests.

The next important producing operations are those of the Standard of New Jersey subsidiaries. The Huasteca Petroleum Co. in January had a production of 135,379 bbls. and the Tuxpan Petroleum Co. 155,332 bbls. The company has other smaller producing interests. The Mexican Gulf Oil Co. (Gulf Oil Corp.) was one of the larger producers with a total of 128,781 bbls.

The following table gives the January production by companies and individual operators:

	Cubic meters	Barrels
Aguila El, Cia Mex de Petroleo, S.A.	226,796	1,426,547
Agwi, S.A. Cia Petrolera del	4,720	29,689
American International Fuel & Pet. Co.	2,038	12,819
Alba J. Ignacio	1,066	6,705
Aztlan, S.A. Cia de Inversiones	286	1,799
Capuchinas Oil Co.	302	1,900
Continental Mexican Pet. Co.	84	528
Corona La, Cia Mexicana Holandesa, S.A.	12,261	77,122
Cosmos, Cia Mexicana de Petroleo, S.A.	1,099	6,913
English Oil Co.	94	591
Financiera de Petroleo, S.A. Cia	152	955
Franco Espanola, S.A. Cia Petrolera	1,753	11,026
Gas y Petroleo, S.A. Cia de	200	1,258
Globe Pet. Co.	965	6,070
Gonzales y Merriwether	1,444	9,083
Graeser, E., S. en C.	829	5,214
Guaranty Oil and Mineral Association	182	1,145
Gulf Coast Corp.	10,687	67,221
Hamilton & Devine, S. en C.	535	3,365
Head, Martin F.	17	107
Hispano Cubana de Petroleum, S.A. Cia	792	4,982
Huasteca Pet. Co.	21,507	135,279
Imperio, S.A. Cia de Gas y Combustible	4,378	30,683
Industrias Consolidadas, S.A.	210	1,321
International Pet. Co.	18,089	113,780
Jonkers, P. J., S. en C.	2,285	14,373
Kern Mex Oil Fields, S.A.	1,439	9,051
Lopez Filigrana Ramon	164	1,032
Maza, Manuel C.	237	1,491
Mar, Blas C.	191	1,201
Maza, Francisco y Luz Etienne de Naza	111	698
Mexican Atlas Pet. Co.	2,306	14,505
Mexican Gulf Oil Co.	20,474	128,781
Mexican Sinclair Pet. Co.	6,895	43,370
Mexicana de Petroleo, S.A. Cia	12,885	81,045
Meza, Moreno Teodoro	710	4,466
Minerva, S.A. Cia Petrolera	1,181	7,428
Nacional Explotadora de Petroleo, S.A.	99	623
National Oil Co.	671	4,221
New England Fuel Oil Co.	1,324	8,328
Otontepec Pet. Co.	15	94
Penn Mex Fuel Oil Co.	10,888	68,486
Perez de Castillo Soledad e Irene P. de Rivera	290	1,824
Petroleos Nacionales, S.A.	1,440	9,058
Piper, R. G., S. en C.	57	359
Petroleos de Mexico, S.A.	6,457	40,614
Rivera, Theodore	82	516
Sabalo Transportation Co.	329	2,069
Sanchez Navarro Pedro	1,349	8,485
Schalet, Carl V., S. en C.	600	3,774
Smith, Alex, y Compania	348	2,189
Sol El, Cia Mex. de Petroleo, S.A.	190	1,195
Southern Fuel & Ref. Co.	9,349	58,805
Standard Drilling Co.	64	403
Stanford y Compania	14,777	92,947
Tamiahua Pet. Co.	3,176	19,977
Tampascas Oil Co.	249	1,566
Tampico Amatlan, S.A. Cia Petrolera	163	1,025
Tantuan, S.A., Compania Petrolera	1,065	6,699
Texas Co. of Mexico, S.A.	3,399	21,380
Tierra Amarilla y Anexas, S.A. Cia Petr. de	562	3,535
Thomas, R., y Compania, S. en C.	34	214
Tilleston, A. R., S. en C.	1,032	6,491
Transcontinental de Petroleo, S.A. Cia	13,351	85,236
Tuxpan Pet. Co.	24,695	155,332
Ulises, S.A. Compania Petroleo, S.A. Cia	426	2,680
Unida de Inversiones, S.A. Cia	2,473	15,555
Venable, H. C.	217	1,365
Vincent, Mordelo L.	766	4,818
Wiegand, F. W.	121	761
Total	460,122	2,894,167

The petroleum division of the Department of National Economy of Mexico lists 28 producing fields or "zones' in that country in a report covering January operations. These fields produced 2,894,167 bbls. during that month as shown in the following table:

	Bbls.
Altamira	16,630
Ebano	84,299
El Limen	11,026
Cacalilao (Panuco)	292,233
Panuco (Diversos)	303,757
Topila	25,971
San Geronimo	2,793
San Sebastian	1,201
Comales	1,032
Dos Bocas	2,157
Chiconcillo y San Miguel	10,014
Tepetate Chinampa Amatlan Zacamixtle	378,293
Toteco y Cerro Azul	228,321
Tierra Amarilla	3,535
Moralillo	3,472
Alazan	15,360
Potrero del Llano	72,272
Carro Viejo	31,016
Tierra Blanca Chapapote Alamo	174,875
Jardin	5,931
Paso Real	37,709
Mecatepec	2,717
Poza Rica	336,792
Furbero	3,856
Tonala	294,227
El Plan	484,072
Filisola	70,555
Tecuanapa	31
Total	2,894,167

GERMANY

Lacking extensive mineral oil deposits, Germany is turning more and more to its chemical industry to supply a larger share of its expanding motor fuel requirements in order to lessen dependence upon foreign petroleum, according to a report from Consul S. B. Redecker, Frankfort-on-Main, made public by the Commerce Department's Chemical Division.

For several years the use of alcohol as a mixture with gasoline has been compulsory in Germany, the ratio of admixture being successively increased to 10 per cent, and it is likely, the report points out, that Germany is today consuming more alcohol in motor fuel than any other country.

During 1934 a total of 170,000 metric tons of alcohol was so consumed, compared with 140,000 tons in the preceding year.

German alcohol production is essentially agricultural in character, according to C. C. Concannon, chief of the Chemical Division, Bureau of Foreign and Domestic Commerce. From 70 to 80 per cent or more is produced from potatoes with the remainder coming from grain, molasses, fruit and other sources. Germany's potato crop, which in some years reaches 50,000,000 tons, is in excess of the country's needs as a foodstuff, in spite of the very high per capita consumption, and since the beginning of the present century organized effort has been made to increase the consumption of potato alcohol.

Benzol, another "chemical fuel," obtained as a by-product of the coal tar industry, is produced on a large scale in Germany, the consul's report states, the output ranking only second to that of the United States. In no other country does this product play such an important role in motor fuel as in Germany, according to the report. In 1934 benzol production in Germany increased about 15 per cent to over 300,000 metric tons, of which around 280,000 tons were utilized as motor fuel.

The national output of benzol will be further increased during the current year by the reincorporation of the Saar area, where the annual output is from 30,000 to 40,000 tons. Owing to the strong domestic demand for benzol as motor fuel, German cokery plants have been making efforts to augment the output of benzol by means of improved recovery equipment, notably the "Still Inner-Gas Exhaust" system, which is said to increase the benzol yield around 30 per cent, though it lowers the value of the gas output. An increasing number of plants are being equipped with this apparatus.

Another conspicuous development is the production of "synthetic gasoline" from coal and brown-coal, of which Germany has large resources. Until 1934 the production of motor fuel from this source had been around 100,000 metric tons, but stimulated by the Government's policy the industry expanded considerably during that year, until at the beginning of 1935 the output was at the rate of 220,000 tons per annum, and is expected to reach 350,000 tons during the current year.

Non-liquid fuels, notably methane, propane, butane and so-called Ruhr-gas-oil are other sources to which German chemists are turning for motor fuel, according to the report.

Three miles inland along proposed route for canal to connect to wildcat test in eastern Venezuela. The natives are towing dug-out canoe through knee-deep water and mud carrying surveying equipment and supplies

ITALY

The approval of licenses covering the construction of refineries and the importation of petroleum products into Italy are being figured on a basis of a total demand for 1935 of approximately 14,500,000 bbls. or 40,000 bbls. daily. The 1935 estimate is figured on an increase in demand over 1934 of approximately 10 per cent. This figure does not include provision for additional storage.

Actual refinery construction under the new Italian law which became effective over a year ago has not started as all details in connection with the government's plans have not been worked out. In addition to the four principal refining organizations in Italy, other concerns have filed applications for licenses. While the domestic refining industry is being expanded under this plan to supply domestic requirements, importations will continue under a licensing system. At present the crude runs to stills of Italy total a few thousand barrels daily. The domestic crude oil production is approximately 700 bbls. daily.

The following table shows the consumption of petroleum products in Italy in 1934, based on revised government data which is being used in working out the details of its plans to expand domestic refining operations (data in barrels):

Product—	Consumption	Pct. of ttl.
Gasoline	3,299,300	24.2
Kerosene	3,162,200	23.2
Lubricating oil	582,400	4.3
Fuel oil	5,180,000	38.1
Other oils	1,379,000	10.2
Total	13,602,900	100.0

This domestic consumption represents an increase of 2,845,300 bbls., or approximately 26 per cent over 1933.

PRODUCTION

Crude oil production in Peru for March and first quarter of 1935 and 1934 was as follows: (data in barrels)

	1935	1934
March	1,218,852	1,086,827
First quarter	3,572,825	3,317,025
March (daily)	39,318	35,046
First quarter (daily)	39,698	36,855

Crude oil production in Colombia for March and first quarter of 1925 and 1934 was as follows: (data in barrels.)

	1935	1934
March	1,446,821	1,017,147
First quarter	4,242,164	2,933,398
March (daily)	46,670	32,810
First quarter (daily)	47,135	32,593

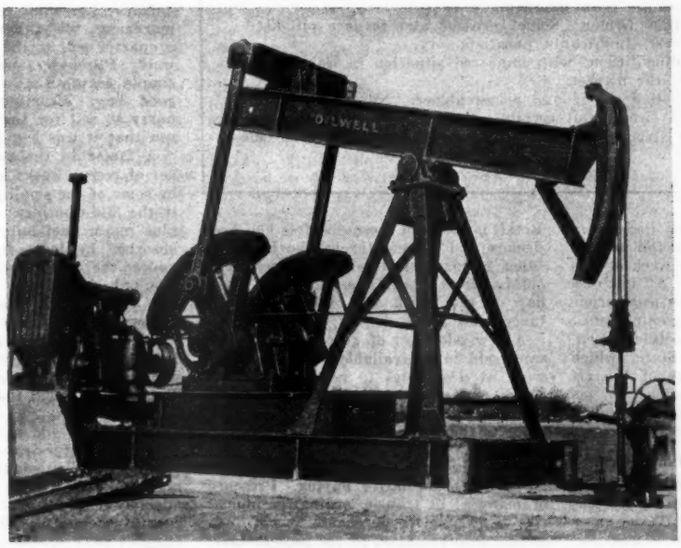
The following preliminary report covers crude oil production and refinery operations in the U.S.S.R. for March, 1935, with comparative data for March, 1934: (data in tons):

	1935	1934
Crude oil production	3,019,900	2,092,400
Drilling (meters)	136,187	109,120
Crude runs to stills at refineries	1,673,500	1,751,200

Production in Venezuela for the four weeks ending April 13 was as follows: (data in barrels):

Caribbean Petroleum Co.—	
Mene Grande	536,300
Venezuelan Oil Concessions, Ltd.	
La Rosa	613,300
Lagunillas	1,943,000
Concepcion	109,000
La Paz	14,500
Colon Oil Corp.	408,300

for SUPER SERVICE install . . . "OILWELL" PUMPING UNITS



"OILWELL" *TC 27-L Unit Pumping Power with extended base for V-Belt Gasoline Motor Drive*

"OILWELL" DESIGN GIVES YOU THESE FEATURES!

- Rugged, Compact, Portable Rig
- Minimum Installation Cost
- Arc or Link Type Hangers
- Wide Range of Strokes
- Self-Locking Service Brake
- Adjustable Counterbalances
- Two-Well Pumping Attachment
- Sealed, Grease-Packed Bearings
- Double Reduction Speed Reducers . . . with Helical Heat-Treated Gears
- Conservative Oil Country Rating
- Wide Selection of Prime Movers
- Ample Clearance for Servicing

TWIN-CRANK UNITS

TC 20 14,000 lbs. Polished Rod Load Capacity. Stroke Range 22½" to 52½".

TC 27-L 20,000 lbs. Polished Rod Load Capacity. Stroke Range 24" to 54".

TC 27-H 25,000 lbs. Polished Rod Load Capacity. Stroke Range 24" to 74".

TC 35 25,000 lbs. Polished Rod Load Capacity. Stroke Range 24" to 74". (Has same structural rig as TC 27-H Unit with larger H.P. capacity Reduction Gear.)

SINGLE-CRANK UNITS

No. 5 5,000 lbs. Polished Rod Load Capacity. Stroke Range 12" to 24".

No. 10 10,000 lbs. Polished Rod Load Capacity. Stroke Range 22½" to 37½".

ODH-18 14,000 lbs. Polished Rod Load Capacity. Stroke Range 22½" to 52½".

• A complete line of sturdy, dependable pumping units for every pumping service.

Ask our nearest store for detailed information.

OIL WELL SUPPLY CO.
SUBSIDIARY OF UNITED STATES STEEL CORPORATION

Branch Stores in all Oil Fields

3011

"OILWELL"

Motoring Weather, Along With Cleanup in East Texas, Spurs Gasoline Market in Group 3

By T. F. SMILEY

Superb motoring weather, along with a sharp tightening of the situation in East Texas, had a tonic effect on the gasoline market in the Oklahoma (Group 3) area this week. Belief seemed to be general that tank car prices, which for the last two months have been rising steadily and acquiring an increasingly firmer tone, would go to still higher levels with a little prolongation of the sunshine and warmer temperatures attending the arrival of the Easter season. Recent predictions of 5 cents for low-octane motor fuel were likely to see early fulfillment, in the opinion of observers. Pleasant driving conditions were reported throughout the greater part of the territory fed by Group 3 refiners.

No Setback Predicted

Comparison of tank car gasoline prices of two months ago with those now ruling reveals that the third grade is commanding 1¼ cents more than it did then. Other grades have benefited, but not so pronouncedly. The advance has been without interruption, notwithstanding frequent prophecies that it would hit a snag. The feeling is general now that no setback is likely, though it is not hard to find those who still assert their lack of faith in the present buoyant market, declaring it is fictitious in that it is largely the result of inter-refinery purchasing and sooner or later must go the way of other good-looking gasoline markets created by managed buying and not by the simple and direct operation of demand and supply.

Supporters of inter-refinery buying, designed to prevent accumulation of excess stocks, take the attitude that it does not represent tampering with the law of supply and demand, but on the contrary makes operation of that law smoother and more effective.

Refined Oil Market Barometer

Tank car and retail gasoline markets looking better in all areas, with improved motoring conditions pointing to an increasingly stronger consumptive demand. The whole gasoline market structure is regarded as more basically sound than it has been in months past. The almost complete cessation of illegal refining operations in East Texas is one of the noteworthy developments of the week. Furnace oil demand has held so long that there will be only a brief interval between the close of the season now ending and the making of new contracts for next fall.

Mid-Continent.—Gasoline and natural gasoline strong. Cracking stock scarce. Lubricants steady. Wax improving.

East Coast.—Gasoline firmer. Some kerosene and furnace oil distillates looking for buyers. Lubricants unsatisfactory.

Gulf Coast.—Gasoline firmer, with improved situation in East Texas. Few changes in rest of the market.

Pennsylvania.—Gasoline strong and prices higher. Naphthas up.

California.—Market firmer, but erratic. Motor grade of gasoline up.

Chicago.—Gasoline strong and in demand at higher prices. Kerosene more active.

Reports from East Texas disclosed a startling transformation in the market scenery of that area. As the week opened 18 refineries were operating. All but one, it was said, were running on legal crude and that one was not making shipments.

The trucking of illegal gasoline to consuming points inside the State, which constituted the last recourse of the refiner unable to obtain tenders on his products, was reported to have dwindled almost to the vanishing point.

Results of Better Conditions Seen

The highly improved conditions in East Texas were indicated by two service station price advances for East Texas gasoline in the Dallas and Fort Worth districts in the last week, each of 1 cent. Retail markets in those districts had been demoralized for months by the inflow of illicit motor fuel. The lowest dock price obtainable at East Texas refineries Tuesday of this week was 4½ cents, plus taxes of 5 cents.

A few odd cars of gasoline in transit were said to be available Monday of this week at 4¼ cents to resellers, but refiners throughout the Group 3 territory were demanding 4⅜ cents, making the price to the trade 4½ cents. One of the noteworthy features of the current uptrend in motor fuel has been the virtual absence of speculative buying. Presence of material in transit, ordinarily indicative of speculative purchases, is not open to that interpretation in the present case, but is seen as evidence of scarcity which impels the broker to order out gasoline in advance of shipping instructions from his own clients as a precaution against finding himself unable to get it promptly when it is needed. The practice occasionally results in the broker having a few cars on his hands which he is ready to sell at slight shading of current refinery prices.

Jobber buying, though showing a little more sign of life, was still limited, most of the gasoline movement being on contract.

Naturals Still Going Up

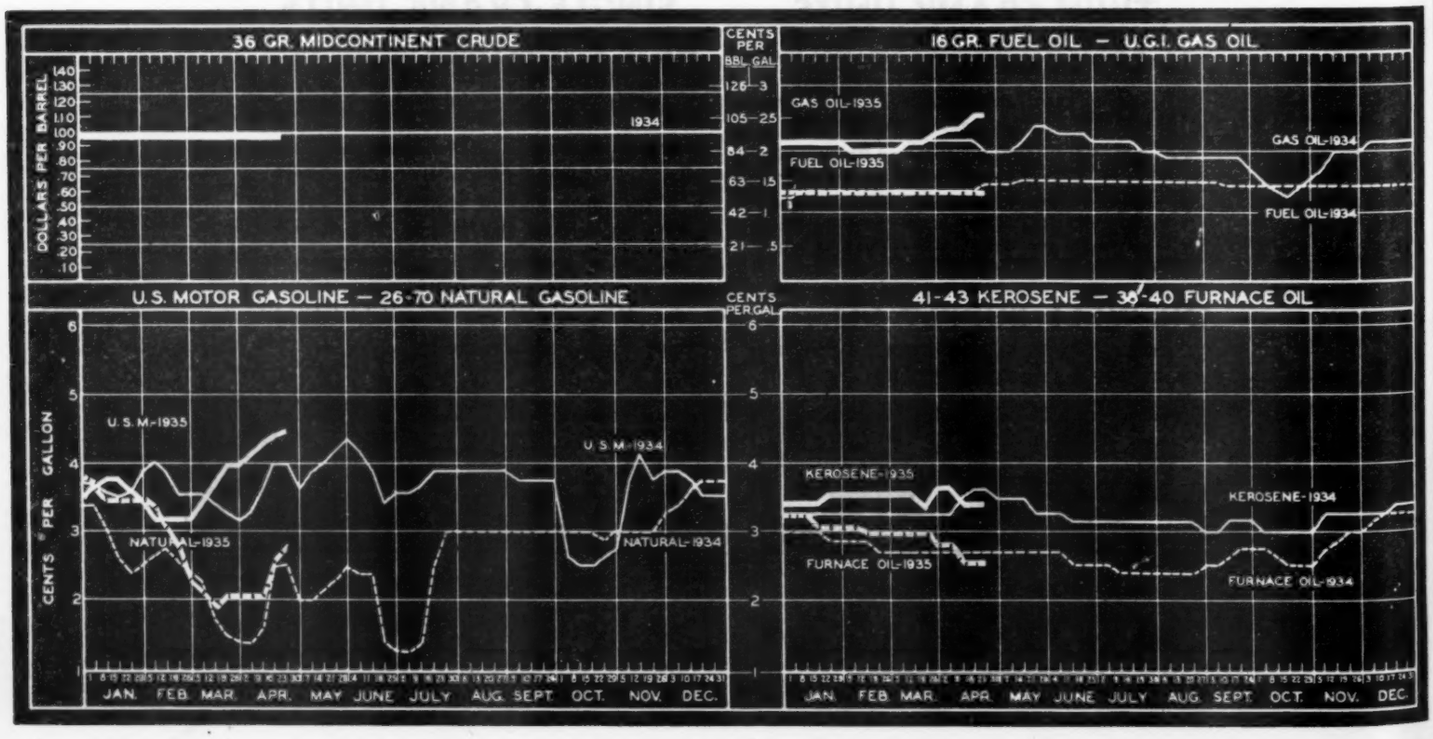
Natural gasoline continued its skyward movement, with all grades adding about a quarter-cent to the prices recorded last week. Purchasers were plentiful for the simple reason that this material was a good buy. Manufacturers were in no hurry to sell for the equally simple reason that it was a good thing to hold.

A factor in the natural gasoline market of recent weeks has been the demand by some of the small independent refiners in the Mid-Continent territory whose surplus motor fuel output is sure of being absorbed by large integrated companies under the "big brother" arrangement. Not only have these small refiners been able to swell their gallonage by blending natural with their refinery product, but they have garnered the profit lying in the difference between the price of 26-70 and the price of motor fuel.

Suppose a small independent refiner in Oklahoma pays 2¾ cents for the 26-70 grade. After adding freight charges of about 1 cent for transportation from the natural gasoline plant to his own refinery and depreciation costs of say one-quarter cent the material has cost him roughly 4 cents a gallon. At the present (resale) price of 4⅜ cents for low-octane

(Continued on Page 32)

Representative Mid-Continent Quotations on Crude Oil and Refined Products Basis Oklahoma (Group 3)



Better Tone Is Continuing in the Eastern Markets; Spot Trading Dull But Majority Is Optimistic

By C. O. WILLSON
New York Bureau, The Oil and Gas Journal

NEW YORK, Apr. 22. — The better tone to the gasoline market which has been apparent in this territory starting the first of the month, continued during the past week. The only actual price changes were of local significance applying in most cases to posted dealer and service station quotations. The most important advance was the .2-cent increase in Greater New York made effective April 18. This increase followed a .3-cent advance of the previous week making a .5-cent contribution on a return to normal price levels. The new service station prices are 15.5 and 16 cents for the regular grade in most of the metropolitan area including 5-cent state and federal taxes. These prices are still 2 to 2.5 cents below what a majority of the companies consider the necessary levels to cover refining and marketing costs.

While spot trading in gasoline tank car markets was dull a majority of the trade was optimistic with the expectation that prices both in the tank car and service station ends will continue upward with the so-called "normal" levels generally established before the arrival of the summer peak consumption.

Discussions within the trade indicate that a policy of "making haste slowly" may be adopted in regard to price advances in all grades of motor fuels in this territory, assuming that conditions in the Mid-Continent and the Gulf Coast continue to improve. The thought back of this plan, according to one sales manager, is to advance quotations only as they can be supported by the base prices prevailing for tank car material at the Gulf Coast and the Atlantic Seaboard points. The explanation of this procedure is that it is futile to advance dealer and service station prices except as normal margins can be maintained between these quotations and the delivered tank car prices. If the margins become exceptionally wide, price cutting in one or more form or another always starts, resulting in demoralized conditions that require weeks and in some cases months to rectify.

Want Firm Foundation

This sales manager and others hope to see a firmly established tank car market which will furnish the foundation on which they will establish fair prices for all classes of final consumers of motor fuel products. He says that when this is done every class of consumer will be charged in line with distribution costs. He contends this situation does not prevail now and has not most of the time during the past two years. He particularly stresses the situation in regard to commercial consumer accounts which constitute a large business in this territory. He contends it is impossible under any method of cost accounting to justify sales to these accounts with the tank wagon deliveries at one-half to 1 cent above the delivered tank car prices. These prices are in effect where large gallonage is available on yearly contracts. He cites other abuses in the commercial account business and also in the handling of dealer accounts. He feels these conditions are entirely a reflection of the fact there is constant pressure in tank car markets to get rid of more gasoline than is required by consumer markets. He also stresses the fact it is the prices received in these consumer markets and not tank car quotations that determine the profits or losses of a great majority of all oil companies.

This view, if it is general, is significant from the market angle in that it indicates less emphasis will be placed on code agreements as a means of working out the problems of marketing gasoline after it leaves the refineries. These codes covering ethical practices, in general, have failed in their objective of stabilizing conditions in marketing operations and, in the opinion of many, can have no value in that respect in the future. What is finally done in this regard will depend in part on the plan adopted by the Government in regard to the continuance of the entire NRA program after the present program expires in June. Representative opinions in this territory indicate a majority are not favorable to a continuance of code control in marketing such as has been attempted during the past two years and would be willing to return to conditions based more on open price competition.

Gasoline Consumption

On the favorable side of the gasoline situation, observers list the seasonal increase in consumption which from now on should be less susceptible to cold and wet week-ends and other uncertainties of the weather. In this connection some of the major companies which have their own market research organizations feel confident gasoline consumption will shortly show a gain of 5 to 10 per cent over the same period last year. The Bureau of Mines data for January and February showed the domestic demand for gasoline based on refinery shipments was only slightly greater than the same period in 1934 with a decrease in exports, so the total demand (domestic demand plus exports) for the two periods was practically the same.

The government data for March and so far in April are not available. The companies mentioned, however, have methods of arriving at estimates of consumption in advance of the government reports. These estimates, which usually prove to be very accurate, indicate March consumption was 5 to 10 per cent above March, 1934, for the area east of the Rocky Mountains. April developments for the first 15 days were not as favorable so far as this section was concerned, and the cold and rainy weather is held responsible. Those in close touch with this situation feel confident a gain in demand of 5 to 10 per cent starting in May is assured. The estimates are based in part on the large increase in motor vehicle production and sales the first quarter. The registration figures show more cars are registered than on the same date last year, and with the same consumption per car the conclusion is reached the domestic demand will increase. This gain, if it materializes, will be an important aid in bringing about stronger refinery and service station prices.

The prevailing tank car prices quoted in New York harbor are: 5½ cents, low octane; 5¾ cents, middle octane; 6 cents, 65 octane and above, and 6¼ cents for the ethylized regular branded grades. These grades appear to be well established at these price levels, with practically no complaints of shading. The prices at the Gulf on these grades for coastwise shipments are one-half to three-quarters cent lower. This spread covers tanker costs. It is said that there is little if any excess gasoline at the Gulf that is available under the general market at this time. The Gulf export market on gasoline is inactive with prices unchanged. The 64-66, 375 grade is quoted at the Gulf over a price range of 4⅞ to 5⅛ cents.

There is "bargain" material available in small quantities of kerosene and furnace oil distillates at several points along the Atlantic seaboard. This is material in the hands of sellers who have supplies in excess of requirements over the next few weeks and are willing to make concessions to obtain orders.

In New York harbor kerosene and No. 1 furnace oil is quoted by most sellers over a price range of 5 to 5¼ cents and the Nos. 2, 3 and 4 furnace oils, 4 to 4¼ cents. Scattered sales of the latter have been made under 4 cents with kerosene and No. 1 furnace oil under 5 cents. It is believed by many that this low priced material will shortly be absorbed and the market will strengthen at the levels of the larger sellers. Preparations are now being made to close contracts with furnace oil consumers for the season which starts next fall. Discussion indicates that contracts with little variation from those effective over the past year will be offered. Most of the oil companies expect a gain in demand next season due to the increase in oil burner installations in this territory.

(Continued on Page 32)

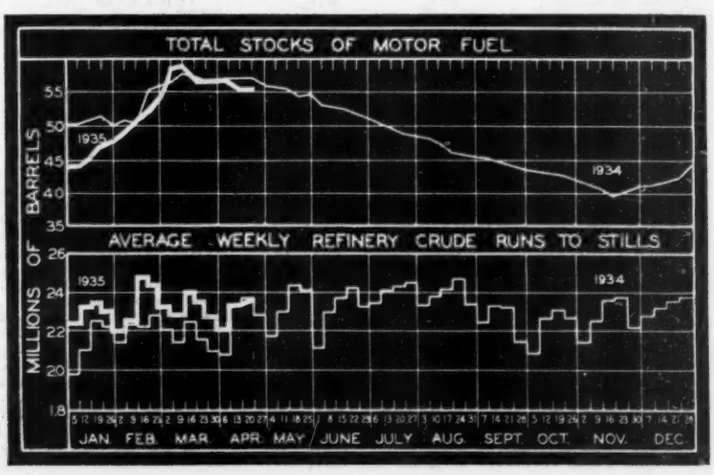
GASOLINE MARKETING CONDITIONS IMPROVE

NEW YORK, Apr. 23.—An advance of 1 cent per gallon in gasoline service station prices covering most of metropolitan New York, effective April 24, and announced today, is interpreted as another indication that gasoline marketing conditions in this section are improving. The new price for regular grade motor fuel is 17 cents, including 5 cents taxes. This price is still 1 to 1½ cents below normal, but is 1½ cents above recent low quotations. Gasoline tank car prices here and at the Gulf were strong today, with predictions that quotations would be advanced as a result of the increase in local retail prices.

American Petroleum Institute Weekly Refinery Statistics

Week Ending April 20, 1935

	Capacity reporting per cent	Daily crude runs (bbls.)	Finished motor fuel (bbls.)	Gas oil and fuel oil (bbls.)
East Coast	100.0	436,000	17,442,000	9,017,000
Appalachian	93.3	107,000	2,060,000	777,000
Indiana, Illinois, Kentucky	94.6	341,000	9,601,000	4,075,000
Oklahoma, Kansas, Missouri	83.7	267,000	5,551,000	4,007,000
Inland Texas	47.6	92,000	1,449,000	1,776,000
Texas Gulf	97.7	505,000	6,959,000	8,950,000
Louisiana Gulf	96.4	101,000	1,465,000	3,108,000
North Louisiana and Arkansas	83.7	43,000	244,000	311,000
Rocky Mountain	66.7	46,000	974,000	765,000
California	96.9	448,000	10,120,600	64,460,000
Total United States	89.8	2,386,000	55,865,000	97,246,000



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement except as otherwise noted

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasolines

	Apr. 23		Apr. 16	
OKLAHOMA (Group 3)—				
U. S. Motor grades:				
Below 63 octane	.04½	.04⅝	.04⅜	.04½
63-70 octane	.05¼	.05⅜	.05⅛	.05⅜
60-62 400 grade:				
Below 63 octane	.04½	.04⅝	.04⅜	.04½
63-70 octane	.05¼	.05⅜	.05⅛	.05⅜
64-66 375	.04⅝	.04¾	.04½	.04⅝
68-70 360	.04¾	.04⅞	.04⅝	.04¾
NORTH TEXAS—				
U. S. Motor grades:				
Below 63 octane	.04½	.04⅝	.04⅜	.04⅜
63-70 octane	.05¼	.05⅜	.05	.05¼
60-62 400	.04½	.04⅝	.04⅜	.04⅝
64-66 375	.04⅝	.04¾	.04½	.04⅝
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
U. S. Motor grades:				
Below 63 octane	.05		.04⅞	.05
63-70 octane	.05¾		.05⅝	.05¾
60-62 400	.05		.04⅞	.05
ARKANSAS (Ark., N. La. & Miss. del.)—				
U. S. Motor grades:				
Below 63 octane	.05		.04⅞	.05
63-70 octane	.05¾		.05⅝	.05¾
CHICAGO (based on Oklahoma Group 3)—				
U. S. Motor grades:				
Below 63 octane	.04½	.04⅝	.04⅜	.04½
63-70 octane	.05¼	.05⅜	.05⅛	.05¼
60-62 400	.04½	.04⅝	.04⅜	.04½
64-66 375	.04⅝	.04¾	.04½	.04⅝
68-70 360	.04¾	.04⅞	.04⅝	.04¾
Aviation fighting grade	.05⅜	.05½	.05¼	.05⅜
PENNSYLVANIA (inland refineries)—				
58-60 U. S. Motor:				
Below 60 octane	.05¼		.05	.05⅛
60-64.9	.06½		.06¼	
65-70 octane	.06¾		.06½	
68-70 350	.06¼	.06½	.05⅝	
CALIFORNIA (domestic movement)—				
54-58 U. S. Motor	.07	.08	.06	.07½
58-60 400	.08	.09	.08	.09
EAST COAST—				
U. S. Motor, below 60 octane:				
*New York (Bayonne)	.05½		.05½	
Baltimore	.05½	.05¾	.05½	.05¾
U. S. Motor, 60-64.9 octane:				
*New York (Bayonne)	.05¾		.05¾	
Philadelphia	.05¾	.06	.05¾	.06
Boston	.05¾		.05¾	
Baltimore	.05¾		.05¾	
Charleston, S. C.	.05¾		.05¾	
U. S. Motor, 65 and above:				
*New York (Bayonne)	.06		.06	
Philadelphia	.06	.06¼		.06¼
Boston	.06	.06¼	.05¾	.06
Baltimore	.06	.06¼	.05¾	.06
Charleston, S. C.	.06	.06¼	.05¾	.06

*All grades of gasoline one-fourth cent less for small barge shipments.

GULF COAST (domestic)—				
U. S. Motor:				
Below 60 octane	.05¼		.05¼	
60-64.9 octane	.05¼	.05½	.05¼	.05½
65 octane and higher	.05½		.05½	

Naphthas

	Apr. 23		Apr. 16	
PENNSYLVANIA (inland refineries)—				
50-52 (blending)	.05½		.04⅞	.05
52-54 450 (blending)	.05⅛		.04⅞	.05
54-56 450 (blending)	.05⅛		.04⅞	.05
50-52 450 (blending)	.05⅛		.04⅞	.05
CHICAGO (based on Oklahoma Group 3)—				
50-52 450 (blending)	.04½	.04¾	.04¼	.04½
Cleaners' naphtha, 56-58 gr., 200 i.b.p., 320 e.p.	.06¾	.07	.06¾	.07
Lacquer diluent, 180 i.b.p., 250 e.p.	.07¾	.08	.07¾	.08
Lacquer diluent, 140 i.b.p., 200 e.p.	.08¾	.09	.08¾	.09
Rubber solvent, 68-70 gr., 100 i.b.p., 300 e.p.	.06¾	.07	.06¾	.07
Stoddard solvent, 300 i.b.p., 410 e.p., over 83° flash	.06¼	.06½	.06¼	.06½
Pet. thinner, 290-300 i.b.p., 410 e.p., over 83° flash	.06¼	.06½	.06¼	.06½
V.M.&P. naphtha, 56-58 gr., 190-200 i.b.p., 330 e.p.	.06¾	.07	.06¾	.07
Petroleum spirits	.05¾	.06	.05¾	.06

Natural Gasolines

	Apr. 23		Apr. 16	
OKLAHOMA (Group 3)—				
Grade 26-70	.02⅝	.03	.02½	.02¾
Grade 18-55	.03½	.03¾	.03¼	.03½
Low vapor pressure grades:				
14 lb. v.p. (max.)	.04	.04¼	.03¾	.04
12 lb. v.p. (max.)	.04½	.04⅝	.04¼	.04½
NORTH TEXAS—				
Grade 26-70	.02½	.02⅝	.02¼	.02⅜
Grade 18-55	.03⅜	.03½	.03⅛	.03¼
Low vapor pressure grades:				
*14 lb. v.p. (max.)	.04	.04¼	.03⅝	.03¾
*12 lb. v.p. (max.)	.04½	.04⅝	.04⅛	.04¼

*Nominal.

NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
Grade 26-70	.03		.02⅝	
CALIFORNIA—				
75-85 375	.05	.06	.05	.06

Kerosenes

(All kerosenes water white)

	Apr. 23		Apr. 16	
OKLAHOMA (Group 3)—				
41-43	.03½	.03⅝	.03½	.03⅝
42-44	.03⅝	.03¾	.03⅝	.03¾
NORTH TEXAS—				
40-41	.03⅜	.03½	.03⅜	.03½
41-43	.03½	.03⅝	.03½	.03⅝
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
41-43	.03¾		.03¼	
ARKANSAS (Ark., N. La. & Miss. del.)—				
41-43	.03⅞		.03⅞	
PENNSYLVANIA (inland refineries)—				
45	.04¾		.04¾	.04⅞
46	.04⅞		.04⅞	.05
47	.05		.05	.05⅛
CHICAGO (based on Oklahoma Group 3)—				
41-43	.03½	.03⅝	.03½	.03⅝
42-44	.03¾	.03⅞	.03¾	.03⅞
CALIFORNIA (Pacific Coast consumption)—				
38-40 high burning test	.04¼	.04⅜	.04½	.05
NEW YORK (Bayonne, N. J.)—				
41-43	.05	.05¼	.05¼	
GULF COAST (domestic)—				
41-43	.04	.04¼	.04	.04¼

Petroleum Coke

(Prices per ton f.o.b. refineries in Chicago area)
(Refineries will absorb freight to 80 cents a ton)

	Apr. 23	Apr. 16
Pile run	6.00	6.00
Direct from still	7.00	7.00
Egg, nut, pea	8.50	8.50
Lump	8.50	8.50

Furnace Oils and Tractor Fuels

(Zero cold test under 190° flash and good odor)

	Apr. 23		Apr. 16	
OKLAHOMA (Group 3)—				
32-36 straw	.02⅝	.02¾	.02⅝	.02¾
36-38 straw	.02¾	.02⅞	.02¾	.02⅞
38-40 straw	.02⅝	.02¾	.02⅝	.02¾
38-40 prime white	.03	.03⅛	.03	.03⅛
NORTH TEXAS—				
38-40 straw	.02⅞	.03	.02⅞	.03
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
36-40 furnace oil	.02¾	.02⅞	.02¾	.02⅞
ARKANSAS (Ark., N. La. & Miss. del.)—				
32-36 furnace oil	.02¾	.02⅞	.02¾	.02⅞
CHICAGO (based on Oklahoma Group 3)—				
32-36 straw	.02⅞	.03	.02¾	.03
38-40 straw	.02⅞	.03⅛	.02⅞	.03
38-40 prime white	.03⅛	.03¼	.03⅛	.03¼
NEW YORK (Bayonne, N. J.)—				
No. 1	.05	.05¼	.05	.05¼
No. 2	.04	.04¼	.04	.04¼
No. 4	.04	.04¼	.04	.04¼

Gas Oil, Diesel Oil and Fuel Oil

(Gas oil per gal., Diesel and fuel oils per bbl.)

	Apr. 23		Apr. 16	
OKLAHOMA (Group 3)—				
32-36 gas oil, cracking stock	.02½	.02⅝	.02½	.02⅝
U.G.I. gas oil	.02½	.02⅝	.02½	.02⅝
32-36, zero to 15 gas oil	.02⅝	.02¾	.02⅝	.02¾
28-30, No. 3 burner oil	1.02½	1.07½	1.02½	1.07½
26-30, zero to 10 fuel oil	.92½	.97½	.92½	.97½
24-26 fuel oil	.75	.77½	.75	.77½
20-22 fuel oil	.70	.75	.70	.75
Below 16 fuel oil	.60	.62½	.60	.62½
NORTH TEXAS—				
32-36 gas oil, industrial	.02½	.02⅝	.02½	.02⅝
22-26 fuel oil	.65	.67½	.65	.67½
Below 20 fuel oil	.60	.62½	.60	.62½
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
30-32 gas oil, zero	.02¾	.02⅞	.02¾	.02⅞
14-16 fuel oil	.70	.75	.70	.75
ARKANSAS (Ark., N. La. & Miss. del.)—				
30-32 gas oil, zero	.02¾	.02⅞	.02¾	.02⅞
32-36 gas oil	.02¾	.02⅞	.02¾	.02⅞
14-16 fuel oil	.65	.70	.65	.70
CHICAGO (based on Oklahoma Group 3)—				
32-36 gas oil, industrial	.02¾	.02½	.02¾	.02⅞
28-30 zero to 10, fuel oil	1.05	1.10	1.05	1.10
26-28 zero to 10, fuel oil	.95	1.00	.95	1.00
22-26 zero to 10, fuel oil	.82½	.87½	.82½	.87½
18-22 zero to 10, fuel oil	.67½	.70	.67½	.70
Below 18 fuel oil	.57½	.62½	.57½	.62½

Note: Fuel oils of more than 40 cold test generally 5 to 15 cents per barrel in all these areas.

PENNSYLVANIA (inland refineries)—				
30-40	.04		.04	
CALIFORNIA—				
Los Angeles:				
30-34 gas oil, per bbl.	1.15	1.25	1.15	1.25
27 plus Diesel	1.15	1.25	1.15	1.25
27 plus Diesel (bunkers)	1.20	1.30	1.20	1.30
12-16 (bunkers at tidewater)	.82½	.90	.82½	.90
10-16 (cargo lots)	.75	.80	.70	.80
12-17 (tank cars)	.62½	.85	.62½	.85
San Joaquin Valley:				
10-18 (tank cars)	.60	.70	.60	.75
San Francisco:				
27 plus Diesel, per bbl.	1.25		1.15	1.25
27 plus Diesel (bunkers)	1.30		1.20	1.30
10-16 (bunkers)	.90		.90	
GULF COAST—				
28-30 gas oil	.03½	.03⅝	.03½	.03⅝
28-30 Diesel (bunkers)	1.70		1.70	
Bunker C (bulk cargoes)	.85	.90	.85	.90
Bunker C (bunkers)	.95	1.00	.95	1.00
NEW YORK (Bayonne, N. J.)—				
27 plus, gas oil	.04	.04¼	.04	.04¼
28-30 Diesel (lighterage 6½ cents per bbl.)	1.89		1.89	
28-30 Diesel (tank cars)	.04¼		.04¼	
*Bunker C (to ocean-going ships in N. Y. harbor)	1.15		1.15	
Industrial fuel (tank cars)	.03¾	.04	.03¾	.04

*Lighterage charge 5 cents per barrel additional.

Neutral Oils

(Vis. at 100° F. except Pennsylvania, and color N.P.A.)

	Apr. 23		Apr. 16	
OKLAHOMA (Group 3)—				
Zero to 10 Cold Test:				
150-3	.10		.10	
180-3	.11¼		.11¼	
180-4	.10⅝		.10⅝	
200-3	.11⅝		.11⅝	
200-4	.11¼		.11¼	
240-3	.13⅜		.13⅜	
240-4	.13¼		.13¼	
280-3	.14¾		.14¾	
280-4	.14		.14	
300-3½	.15¼		.15¼	
400-4	.17¼		.17¼	
100-2 paraffin oil	.05¾		.05¾	
15-20 Cold Test:				
200-3	.10¾		.10¾	
200-4	.10¼		.10¼	
240-3	.12⅝		.12⅝	
240-4	.12¼		.12¼	
280-3	.13¾		.13¾	
280-4	.13		.13	
GULF COAST—				
Pale Oils:				
200-3	.07	.07½	.07	.07½
300-3	.07½	.08	.07½	.08
500-3½	.08½	.09	.08½	.09
750-3½	.09	.09¼	.09	.09¼
1,200-3½	.09½	.09¾	.09½	.09¾
2,000-4	.09¾	.10	.09¾	.10
Red Oils:				
200-5-6	.07	.07¼	.07	.07¼
300-5-6	.07¼	.07½	.07¼	.07½
500-5-6	.08	.08½	.08	.08½
750	.08½	.09	.08½	.09
1,200-5-6	.09¼	.09½	.09¼	.09½
CALIFORNIA (moving to domestic market)—				
Pale Oils:				
100-2½-3	.07½	.07¾	.08	.08¼
200-2½-3	.08	.08¾	.12½	.13½
300-3-3½	.09	.10	.12½	.13½
350-3-4	.10½	.11	.12½	.13½
400-3-4	.12	.12¼	.12½	.13½
450-3-4	.12½	.12¾	.12½	.13½
550-3-4	.13	.13½	.12½	.13½
600-3-4	.13½	.14	.12½	.13½
Red Oils:				
200-4-5	.08½	.09	.12½	.13½
300-5-6	.09		.12½	.13½
350-5-6	.10	.10¼	.12½	.13½

400-5-6	.10½	.10¾	.12½	.13½
450-5-6	.11	.11¼	.12½	.13½
500-5-6	.11½	.11¾	.12½	.13½
600-5-6½	.12	.12¾	.12½	.13½
700-6½ plus	.13	.13¼	.12½	.13½
750-6½ plus	.13½	.13¾	.12½	.13½
900-6½ plus	.14	.14½	.12½	.13½
PENNSYLVANIA—				
150 vis. at 70° F., 3 color, 400-405 flash:				
Zero pour test	.20½	.21	.20½	.21
10 pour test	.19½	.20	.19½	.20
15 pour test	.19	.19½	.19	.19½
25 pour test	.18	.18½	.18	.18½
180 vis. at 70° F., 3 color:				
25 pour test	.21	.21½	.21	.21½
200 vis. at 70° F., 3 color:				
Zero pour test	.25½	.26	.25½	.26
10 pour test	.24½	.25	.24½	.25
15 pour test	.24	.24½	.24	.24½
25 pour test	.23	.23½	.23	.23½

Bright and Steam Refined Stocks

OKLAHOMA (Group 3)—	Apr. 23	Apr. 16
Bright Stocks:		
190-200 D	.17	.17
150-160 D, 0-10	.14	.14
150-160 D, 10-25	.13½	.13½
150-160 24-40	.13	.13
150-160 E	.13	.13
Steam refined:		
630 light green (treated)	.07½ .08	.07½ .08
600 light green (untreated)	.06 .08	.06 .08
600 dark green (untreated)	.04½ .07	.04½ .07
PENNSYLVANIA—		
Bright Stocks (Pennsylvania grade, No. 8 color, 145-50 at 210; 540-550 flash):		
10 pour test	.18½ .19	.18½ .19
15 pour test	.17½ .18	.17½ .18
20 pour test	.16½ .17	.16½ .17
25 pour test	.15½ .16	.15½ .16
Steam refined:		
600	.07½ .08	.07½ .08
650	.10 .10½	.10 .10½
600 Pennsylvania flash	.11 .11½	.11½ .12
630 flash	.16 .16½	.16 .16½
600 Warren E filtered	.12 .12½	.12 .12½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—	Apr. 23	Apr. 16
124-126 white crude scale	.02 .02¼	.02 .02¼
PENNSYLVANIA (inland refineries)—		
122-124	.0210 .0215	.0210 .0215
124-126	.0215 .0220	.0215 .0220
NEW YORK—		
Wax (a.m.p.) in bags fully refined:		
Refined grades:		
123-125	.0380	.0380
125-127	.0400	.0400
128-130	.0425	.0425
130-132	.0440	.0440
133-135	.0500	.0500
135-137	.0525	.0525
Crude scale:		
124-126 w.s.	.0200 .0225	.0200 .0225
124-126 y.s.	.02 .0215	.0190 .0210
Petroleum in barrels in carload lots:		
Dark green	.01⅞	.01⅞
Amber	.02⅞ .03	.02⅞ .03
Extra amber	.03 .03⅛	.03 .03⅛
Lily white	.06⅝ .06¾	.06⅝ .06¾
Snow white	.07¾ .07⅞	.07¾ .07⅞
Cream	.05⅝ .05¾	.05⅝ .05¾
CHICAGO (based on Oklahoma Group 3)—		
122-124 wax	.0440 .0450	.0440 .0450
125-127 wax	.0465 .0475	.0465 .0475
127-129 wax	.0480 .0490	.0480 .0490
130-132 wax	.0540 .0550	.0540 .0550
132-134 wax	.0565 .0575	.0565 .0575

*Cents per pound on carload lots in burlap bags of 225 lbs. approx. Add 3° F. a.m.p.

Export Prices

GASOLINE

GULF COAST—	Apr. 23	Apr. 16
U. S. Motor	.04½ .04⅝	.04½ .04⅝
60-62 400	.04⅝ .04¾	.04⅝ .04¾
61-63 390	.04⅝	.04⅝
64-66 375	.04⅞ .05	.04⅞ .05
LOS ANGELES:		
U. S. Motor grades:		
53-55 octane	.04 .04¼	.04 .04¼
55-65 octane	.04¼	.04¼
65-67 octane	.04¼ .04½	.04¼ .04½
67-69 octane	.04½ .04¾	.04½ .04¾
Above 69 octane	.04¾ .05¼	.04¾ .05¼
58-60 400 endpoint	.04½ .05	.04½ .05

KEROSENE

GULF COAST—				
41-43 prime white	.03⅞	.04	.03⅞	.04
41-43 water white	.04	.04¼	.04	.04¼
44 water white	.04¼		.04¼	
LOS ANGELES:				
41-43 water white	.04¼	.04¾	.04¼	.04¾

LUBRICANTS

NEW YORK (f.a.s. is bbls.)—				
Cylinder Stocks:				
600 Warren E	.18½	.19	.18½	.19
600 S.R. unfiltered	.14	.14½	.14	.14½
650 S.R. unfiltered	.15½	.16	.15½	.16
600 flash S.R.	.16½	.17	.16½	.17
630 flash S.R.	.20½	.21	.20½	.21
Bright Stocks:				
8 color	.21½	.22	.21½	.22
6½ plus colors in dilution	.20½	.21	.20½	.21

NEUTRAL OILS

200-3 color	.30	.32	.30	.32
150-3 color	.25	.27	.25	.27

PARAFFIN WAX (Fully Refined)

NEW YORK (prices per pound):				
123-125 a.m.p.	.03625		.03625	
125-127 a.m.p.	.0375		.0375	
128-130 a.m.p.	.0400		.0400	
130-132 a.m.p.	.0425	.0450	.0425	.0450
133-135 a.m.p.	.0475		.0475	
135-137 a.m.p.	.05		.05	
Crude scale:				
124-126 w.s.	.0200	.0215	.0200	.0215
124-126 y.s.	.02	.0205	.0185	.0200

Crude Oil Gravity Table

Gravity—	Oklahoma and Kansas 1	North Texas, Central Texas and East Central Texas 2	North Louisiana and Arkansas 3	Gray County, Texas 4	Carson, Hutchinson and Moore Counties, Texas 5	Conroe, Texas 6	Salt Creek, Wyo. 7	Gulf Coast, Texas and Louisiana 8	Gulf Coast, Texas and Louisiana 9	Cotton Valley, Louisiana 10
Below 20	....	....	....	....	....	....	....	$.82	$.82	....
20-20.9	....	....	....	....	....	....	....	.84	.84	....
21-21.9	....	....	....	....	....	....	....	.86	.86	....
22-22.9	....	....	....	....	....	....	....	.88	.88	....
23-23.9	....	....	....	....	....	....	....	.90	.90	....
24-24.9	....	....	....	....	....	....	....	.92	.92	....
Below 25	*$.76	....	....	....	....	....	....	....	....	$.70
25-25.9	*.78	....	....	....	....	....	....	.94	.94	.72
26-26.9	*.80	....	....	....	....	....	....	.96	.96	.74
27-27.9	*.82	....	....	....	....	....	....	.98	.98	.76
28-28.9	*.84	....	....	....	....	....	....	1.00	1.00	.78
Below 29	.84	$.79	$.79	....	....	....	$.84	....	....	....
29-29.9	.86	.81	.81	....	....	....	.86	1.02	1.02	.80
30-30.9	.88	.83	.83	....	....	....	.88	1.04	1.04	.82
31-31.9	.90	.85	.85	....	....	....	.90	1.06	1.05	.84
32-32.9	.92	.87	.87	....	....	....	.92	1.08	1.06	.86
33-33.9	.94	.89	.89	....	....	....	.94	1.10	1.07	.88
34-34.9	.96	.91	.91	....	....	....	.96	1.12	1.08	.90
Below 35	....	....	....	$.79	$.69	....	....	....	....	....
35-35.9	.98	.93	.93	.81	.71	$1.09	.98	1.12	1.09	.92
36-36.9	1.00	.95	.95	.83	.73	1.11	1.00	1.12	1.10	.94
37-37.9	1.02	.97	.97	.85	.75	1.13	1.02	1.12	1.11	.96
38-38.9	1.04	.99	.99	.87	.77	1.15	1.04	1.12	1.12	.98
39-39.9	1.06	1.01	1.01	.89	.79	1.17	1.06	1.12	1.13	1.00
40 and over	1.08	1.03	1.03	.91	.81	1.19	1.08	1.12	1.14	1.02

Effective December 3, 1934, Panhandle Refining Co., purchasing oil in North Texas, posted below 29 degrees, 68 cents; 29-29.9 degrees, 70 cents, with 2 cents added for each additional degree up to 40 and over, at 92 cents.

*The following companies purchasing crude oil in Kansas or Oklahoma, or both, begin their price schedule: Below 25°, 76 cents; 25-25.9°, 78 cents, with 2 cents added for each degree upward to 40 and over at $1.08; Carter Oil Co., Magnolia Petroleum Co., Pure Oil Co., Rock Island Refining Co., Shell Petroleum Corp., Sinclair Prairie Oil Marketing Co., Skelly Oil Co., and Wilcox Oil & Gas Co. All others begin their schedules at below 29°, 84 cents, excepting Philtex Oil Co., which begins with below 31° at 88 cents.

Column 1—Effective September 29, 1933, Texas Co. of Oklahoma; Stanolind Crude Oil Purchasing Co. in Kansas and Oklahoma; Anderson & Prichard, Inc., in Oklahoma; Bell Oil & Gas Co. in Oklahoma; Carter Oil Co. in Oklahoma and Kansas; Deep Rock Oil Co. in Oklahoma; Derby Oil Co. in Kansas; Globe Refining Co. in Oklahoma; Golden Rule Refining Co. in Kansas; Gypsy Oil Co. in Oklahoma and Kansas; Kanotex Refining Co. in Kansas; Magnolia Petroleum Co. in Oklahoma; Mid-Continent Petroleum Corp. in Oklahoma; National Refining Co. in Kansas and Oklahoma; Shell Petroleum Corp. in Kansas and Oklahoma; Sinclair Prairie Oil Marketing Co. in Kansas and Oklahoma; Texas Co. in Oklahoma; Tide Water Oil Co. in Oklahoma; Vickers Refining Co. in Kansas; Continental Oil Co. in Kansas and Oklahoma; Empire Pipe Line Co. in Oklahoma and Kansas; Philtex Oil Co. in Kansas and Oklahoma; Pure Oil Co. in Oklahoma; Skelly Oil Co. in Kansas. Effective September 29, by White Eagle Oil Corp. in Kansas; October 1, by Barnsdall Refineries, Inc., in Oklahoma.

Column 2—Effective September 29, 1933, by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Bell Oil & Gas Co., Continental Oil Co. Effective January 14, 1935, in the Van Pool, Van Zandt County, Pure Oil Co. posted below 29°, 79 cents, with 2 cents added for each degree up to 40 and over at $1.03.

Column 3—Effective September 29, 1933, by Texas Co., Magnolia Petroleum Co., Gulf Refining Co. Effective December 22, Stanolind Oil & Gas Co. in Pine Island, Louisiana, and Marion County, Texas, posted below 29°, 79 cents, with 2 cents added for each degree up to 40 and over at $1.03. Effective March 17, 1934, by Standard Oil Co. of Louisiana and Louisiana Oil Refining Co. Starting with below 25°, 71 cents, adding 2 cents for each degree upward to 40 and over at $1.02.

Column 4—Effective September 29, 1933, by Texas Co., Humble Oil & Refining Co., Magnolia Petroleum Co., Sinclair Prairie Oil Marketing Co., and H. F. Wilcox Oil & Gas Co. On same day, Philtex Oil Co. posted below 31°, 71 cents, with 2 cents added for each degree up to 40 and over at 91 cents. Effective June 1, 1934, Texas Co. (see note above).

Column 5—Effective September 29, 1933, by Texas Co., Humble Oil & Refining Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Wilcox Oil & Gas Co., Continental Oil Co. On same day, Philtex Oil Co. posted below 31°, 61 cents, with 2 cents added for each degree upward to 40 and over at 81 cents. Effective June 1, 1934, Texas Co. (see note above).

Column 6—Effective September 29, 1933, by Humble Oil & Refining Co. and Tide Water Oil Co., and on September 30 by Texas Co., which on September 29 had posted a schedule of $1.07 to $1.13 with a 1-cent spread on each degree.

Column 7—Effective September 29, 1933, by Stanolind Oil & Gas Co.

Column 8—Effective September 29, 1933, by Humble Oil & Refining Co., Gulf Pipe Line Co., Shell Petroleum Corp., Pure Oil Co., Sinclair Prairie Oil Marketing Co. On October 2, Magnolia Petroleum Co. posted Lockport, Louisiana, 20-20.9°, 84 cents, with 2 cents added for each degree upward to 34 and over at $1.12; and in Cameron Meadows and Iowa, Louisiana, below 20°, 72 cents, with 2 cents added for each degree up to 34 and over at $1.02. These prices were 2 cents higher on each degree than Magnolia prices posted on September 29. Effective September 29, Shell Petroleum Corp. posted in Iowa, Louisiana, district: Below 20°, 70 cents, with 2 cents added for each degree upward to 34° and over at $1; and in Black Bayou and White Castle, Louisiana: Below 20°, 80 cents, with 2 cents added for each degree upward to 34° and over at $1.10.

Column 9—Effective September 30, 1933, Texas Co. (On September 29 Texas Co. has posted a schedule of 2 cents on each degree, but changed it on September 30.)

Column 10—Effective September 29, 1933, by Louisiana Oil Refining Co.

(California Crude Oil Prices on Page 81)

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

East Texas $1.00
Corsicana (heavy) (June 17, 1933)* ..... .80
Other fields ..... (See gravity table)

Note—In East Texas, effective September 29, 1933, by Texas Co., Sanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Shell Petroleum Corp., Gulf Pipe Line Co., Tide Water Oil Co., Sinclair Prairie Oil Marketing Co., Magnolia Petroleum Co., Sun Oil Co., Panola Pipe Line Co., Empire Oil & Refining Co., and Atlas Pipe Line Co. posted 60 cents per barrel in East Texas, but on November 3 resumed its posted price of $1 per barrel, making it retroactive to October 22.

*Magnolia Petroleum Co.

West Texas

Crane, Upton, Crockett, Howard, Glasscock, Mitchell (Sept. 29, 1933) ..... $.70
Ector, Winkler and Pecos Counties and Lea County, New Mexico (Sept. 29, 1933) ..... .75
Pecos County, Yates shallow Pool (Sept. 29, 1933)* ..... .85
Jones and Fisher Counties*. See gravity table

Note—Effective September 28, 1933, by Humble Oil & Refining Co., Texas Co., Gulf Pipe Line Co., Shell Petroleum Corp., Magnolia Petroleum Co., and by Stanolind Oil & Gas Co. in Winkler County, Texas.

*Shell Petroleum Corp.

Gulf Coast

Grade A and Grade B specifications discontinued by leading buyers. ..... (See gravity table)
Tomball (see note)* $1.15
Livingston (Sept. 29, 1933)† 1.00
Cleveland (Jan. 11, 1934) 1.00
Greta (Sept. 29, 1933) ..... .85
Refugio, light .....(See gravity table)
Refugio, heavy (Sept. 29, 1933)‡ ..... .85
Markham and High Island ..... (See Gulf Coast gravity table)
Conroe .....(See Conroe gravity table)
Bosco, La. (Jan. 16, 1935)§ ..... $.90

Note—Tomball, effective September 29, by Humble Oil & Refining Co. and October 2 by Magnolia Petroleum Co., and November 10 by Stanolind Crude Oil Purchasing Co.

*Greta posted by Texas Co. †Shell Petroleum Corp. ‡Refugio heavy by Humble Oil & Refining Co. Cleveland (Liberty County) posted by Magnolia Petroleum Co. §Bosco posted by Pure Oil Co.

South Central and Southwest Texas

(See note below table)

Darst Creek ..... $.87
Mirando ..... .80
Luling (Sept. 29, 1933) ..... .75
Pettus 1.05
Salt Flat ..... .87
Lytton Springs (Sept. 29, 1933) ..... .95
Duval County (Sept. 29, 1933) ..... .80
Saxet ..... .85

Note—Effective on September 29 by Humble Oil & Refining Co. in Darst Creek, Mirando, Pettus, Salt Flat and Saxet. Effective September 29 in Darst Creek by Gulf Pipe Line Co. and Texas Co. Effective October 2 by Magnolia Petroleum Co. Effective in Pettus and Salt Flat on September 29 by Humble Oil & Refining Co. and Gulf Pipe Line Co. Luling and Lytton Springs by Magnolia Petroleum Co. Duval County by Texas Co. Saxet, effective September 29, by

(Continued on Page 81)

TANK WAGON MARKETS

Quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, include taxes

April 23, 1935

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline quoted is the regular or standard grade. In most marketing areas a third grade and a premium grade are also available.

Discounts

Under the standard form of commercial consumer contract which went into effect March 1, 1934, save in California, Oregon, Washington, Arizona and Nevada, a discount of 1 cent a gallon off tank wagon or 3 cents a gallon off retail prices is permitted for purchases running between 4,000 and 10,000 gallons a month, or 4 cents a gallon off retail prices for purchase in lots of more than 10,000 gallons a month. The minimum delivery is 25 gallons.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline: Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Denver, Colo.	18.0	20.0	5.0	13.0
Pueblo	17.0	19.0	5.0	13.0
Grand Junction	20.5	22.5	5.0	15.0
Casper, Wyo.	18.5	20.5	5.0	11.5
Cheyenne	18.5	20.5	5.0	13.0
Butte, Mont.	21.0	23.0	5.0	17.5
Billings	22.0	24.0	6.0	16.5
Helena	23.0	25.0	6.0	17.5
Great Falls	19.5	21.5	6.0	17.5
Salt Lake, Utah	21.0	23.0	5.0	16.0
Boise, Idaho	22.5	24.5	6.0	18.0
Twin Falls	22.5	24.5	6.0	18.0
Albu'que, N. M.	20.0	22.0	*6.5	13.0

*One-half cent city tax.

Effective March 1, 1934, discount to dealers with or without contract throughout Continental territory: Undivided dealer discount off service station price, 4 cents; divided dealer accounts, 3½ cents.

Standard Oil Co. (Indiana)

	Gasoline: Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Chicago	14.9	16.9	4.0	9.0
Decatur, Ill.	14.9	16.9	4.0	9.5
E. St. Louis	14.5	16.5	4.0	9.1
Joliet	14.9	16.9	4.0	9.5
Peoria	14.0	14.9	4.0	9.5
Quincy	14.7	16.7	4.0	9.3
Davenport, Ia.	14.8	16.8	4.0	9.5
Des Moines	14.7	16.7	4.0	9.3
Mason City	15.1	17.1	4.0	9.7
Sioux City	14.9	16.9	4.0	9.5
Duluth, Minn.	15.7	17.7	4.0	10.3
Mankato	15.3	17.3	4.0	9.9
Minneapolis	15.3	17.3	4.0	9.9
LaCrosse, Wis.	16.3	18.3	5.0	9.9
Green Bay	16.6	18.6	5.0	10.2
Milwaukee	16.2	18.2	5.0	9.8
Madison	16.3	18.3	5.0	9.9
Detroit, Mich.	16.4	18.4	4.0	9.1
Grand Rapids	16.3	18.3	4.0	10.3
Saginaw	16.5	18.5	4.0	10.5
Evansville, Ind.	16.6	18.1	5.0	10.0,
Indianapolis	16.8	18.8	5.0	10.2
South Bend	17.0	19.0	5.0	8.0
Fargo, N. Dak.	16.3	18.3	4.0	10.9
Huron, S. Dak.	16.8	18.8	5.0	10.4
Sioux Falls	16.2	18.2	5.0	9.8
Kans. Ct., Mo.*	14.2	16.2	4.0	7.6
Springfield	13.9	15.9	4.0	8.5
St. Louis	14.6	16.6	3.5	7.6
St. Joseph*	14.3	16.3	4.0	8.9
Wichita, Kans.	13.8	15.8	4.0	6.0
Bartlesville, Ok.	16.0	18.0	5.0	8.5

*State tax 2 cents, 1-cent city tax and 1-cent federal tax.

Discounts to dealers: Undivided accounts, 1½ cents on premium and regular and 2½ cents on third grade off service station prices; divided accounts one-half cent less than undivided. Where prices are more than 1 cent below normal, the discounts are one-half cent less than above.

Stanolex Furnace Oil in Chicago

Effective Feb. 16, 1935, f.o.b. Chicago tank wagon prices: Range oil, less than 80 gallons, 8¼ cents; 80-149 gallons, 7½ cents; 150 gallons and more, 7 cents. No. 1 (36-40 lt. stw. zero), less than 100 gallons, 8½ cents; 100-149 gallons, 7½ cents; 150 gallons or more, 7 cents; No. 2 (30-34, stw. zero), less than 150 gallons, 8 cents; No. 3 (32-36, zero), less than 150 gallons, 7 cents; No. 4 (12-16 zero), less than 400 gallons, 7 cents; viscosity of No. 4, 35 and 100° F.; No. 5, less than 400 gallons, 5¾ cents. For deliveries of more than stated quantities of Nos. 2, 3, 4 and 5, deduct 1 cent.

(Note: Range oil not quoted by Standard; quotation on this product by Burning Oil Distributors Association.)

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline: Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Atlanta, Ga.	18.0	20.0	7.0	12.0
Augusta	19.5	21.0	7.0	13.0
Macon	20.0	22.0	7.0	13.0
Savannah	18.5	20.5	7.0	14.0
Birm'ham, Ala.	21.0	23.0	8.0	16.0
Mobile	20.0	22.0	8.0	11.0
Montgomery	22.0	24.0	8.0	15.5
Jackson, Miss.	19.0	21.0	7.0	11.0
Vicksburg	19.0	21.0	7.0	14.5
Jack'ville, Fla.	18.5	20.5	8.0	11.5
Miami	18.5	20.5	8.0	13.5
Pensacola	20.0	22.0	8.0	11.5
Tampa	18.5	20.5	8.0	12.5
Lexington, Ky.	19.0	21.0	6.0	12.5
Covington	17.5	19.0	6.0	12.5
Louisville	18.0	20.0	6.0	10.0
Paducah	18.0	20.0	6.0	8.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 2 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia and Mississippi include 1 cent state tax; in Alabama, an inspection fee of one-half cent on kerosene and one-fortieth cent on gasoline; in Florida an inspection fee of one-eighth cent on kerosene and gasoline. To Pensacola, Mobile and Birmingham state taxes on gasoline add 1 cent city tax.

Southwestern District

MAGNOLIA PETROLEUM CO.

	Gasoline: Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Dallas, Tex.	14.0	16.0	5.0	8.0
Fort Worth	14.0	16.0	5.0	8.0
Houston	15.0	17.0	5.0	8.0
San Antonio	16.0	18.0	6.0	8.0
El Paso	16.0	18.0	5.0	10.0
Muskogee, Ok.	16.0	18.0	5.0	6.0
Okla. City	16.0	18.0	5.0	8.0
Tulsa	16.0	18.0	5.0	8.0
Ft. Smith, Ark.	14.0	17.5	5.0	8.0
Little Rock	16.5	20.0	7.5	8.0
Texarkana	15.0	17.0	5.0	7.0

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline: Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Atl'tic City, N.J.	12.9	16.4	4.0	9.0
Newark	13.0	16.5	4.0	7.5
Annapolis, Md.	14.3	17.8	5.0	10.0
Baltimore	13.8	17.3	5.0	8.5
Cumberland	15.3	18.8	5.0	12.7
Wash'g'n, D. C.	12.0	15.5	3.0	9.5
Danville, Va.	16.3	19.8	6.0	12.9
Norfolk	14.8	18.3	6.0	11.3
Petersburg	15.5	19.0	6.0	11.4
Richmond	15.5	19.0	6.0	11.7
Roanoke	15.5	18.0	6.0	12.9
Charls'n, W.Va.	14.3	17.8	5.0	12.6
Parkersburg	14.0	17.5	5.0	11.2
Wheeling	14.75	18.0	5.0	12.2
Charlotte, N. C.	15.1	21.6	7.0	13.5
Hickory	18.4	21.9	7.0	13.7
Mt. Airy	18.4	21.9	7.0	13.8
Raleigh	17.9	21.4	7.0	13.3
Salisbury	17.25	20.0	7.0	13.6
Charleston, S.C.	15.9	19.4	7.0	11.3
Columbia	17.7	21.2	7.0	13.2
Spartanburg	16.75	19.0	7.0	13.5

Effective October 23, tank wagon gasoline refers to dealer instead of retail prices.

Price basis to dealers: Undivided dealers at regular price less one-half cent. Discount for kerosene, 1 cent off tank wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except in New Jersey, where no discount is given.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline: Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Omaha	17.3	19.3	6.0	10.1
McCook	18.0	20.0	6.0	10.8
Norfolk	17.7	19.7	6.0	10.5
North Platte	18.1	20.1	6.0	10.1
Scottsbluff	18.8	20.4	6.0	11.6

Note: Discounts to dealers; where service station gasoline prices are (maximum overall, including rent) as follows: Reliance, 2½ cents; Standard Red Crown, 3½ cents; Red Crown Ethyl, 3½ cents.

Where service station gasoline prices are below normal, resellers' allowances are reduced one-half of the amount below normal, down to the following (minimum overall, including rent): Reliance, 2 cents; Standard Red Crown, 3 cents; Red Crown Ethyl, 3 cents. Discounts to consumers for tank wagon deliveries covered only by Standard Commercial Consumers Contract, effective January 1, 1935.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline: Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
N. Orleans, La.	17.5	21.0	‡8.0	†13.0
Baton Rouge	16.5	20.0	†7.0	12.0
Alexandria	17.0	20.5	†*8.0	10.0
Lafayette	17.5	21.0	‡*8.0	12.0
Lake Charles	17.5	21.0	†*8.0	12.0
Shreveport	15.5	19.0	†7.0	12.0
Knoxville, Tenn.	19.5	23.0	8.0	13.5
Memphis	17.5	21.0	8.0	10.5
Chattanooga	19.0	22.5	8.0	11.0
Nashville	18.5	22.0	8.0	13.0
Bristol	18.8	22.3	8.0	14.0

*Includes city tax of 1 cent.

‡Includes 2-cent parish tax. †Includes 1-cent parish tax.

Effective October 23, tank wagon gasoline refers to dealer instead of retail prices.

Price basis to dealers: Undivided dealers at dealer price less one-half cent.

Louisiana kerosene prices include 1-cent state tax.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA.

	Gasoline: Tank wagon†	Posted retail	Incl'ds tax	Kero. tank wagon
San Francisco	16.5	18.5	4.0	11.5
Los Angeles	16.0	18.0	4.0	10.5
Fresno, Calif.	17.0	19.0	4.0	12.0
Phoenix, Ariz.	20.0	22.0	6.0	‡18.0
Reno, Nev.	19.0	21.0	5.0	13.0
Portland, Ore.	19.0	21.0	6.0	13.0
Seattle, Wash.	19.0	21.0	6.0	13.5
Tacoma	19.0	21.0	6.0	13.5
Spokane	22.0	24.0	6.0	16.5

*Retail prices posted by Standard Stations, Inc., a subsidiary.

†Prices are at company's plant or depots, as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent.

‡Includes 5-cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO

	Gasoline: Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Phil'delphia, Pa.	14.0	16.0	4.0	9.0
Pittsburgh	15.0	17.0	4.0	10.0
Allentown	14.5	16.5	4.0	10.0
Erie	15.0	17.0	4.0	9.0
Scranton	15.0	17.0	4.0	10.0
Altoona	15.0	17.0	4.0	10.0
Dover, Del.	14.5	16.5	4.0	10.0
Wilmington	14.5	16.5	4.0	9.0
Springf'd, Mass.	13.0	14.0	4.0	8.0
Worcester	13.1	14.6	4.0	8.5
Hartford, Conn.	12.1	15.6	3.0	7.5
New Haven	12.0	15.5	3.0	8.5
Providence, R.I.	11.8	13.3	3.0	7.0

Note—Tank wagon prices are those applicable to consumers purchasing lots of 100 or more gallons in one delivery.

Canada*

Imperial 3-Star Gasoline

IMPERIAL OIL, LTD.

	Gasoline: Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Hamilton, Ont.	†22.0	25.0	6.0	17.5
Toronto, Ont.	†22.0	25.0	6.0	17.5
Brandon, Man.	30.3	33.3	7.0	21.8
Winnipeg, Man.	27.7	31.7	7.0	20.2
Regina, Sask.	29.0	32.0	7.0	21.5
Saskatoon, Sask.	31.8	34.9	7.0	24.3
Edmonton, Alta.	32.2	35.2	7.0	23.7
Calgary, Alta.	29.5	32.5	7.0	21.0
Vancouver, B.C.	27.0	30.0	7.0	24.0
Montreal, Que.	24.0	27.0	6.0	17.0
St. John, N.B.	26.0	30.0	8.0	19.5
Halifax, N. S.	26.0	30.0	8.0	19.5

*Imperial gallon used in Canada. †Governed by service station price.

Maritime provinces, all dealers 4 cents off service station price. All other provinces open dealers 3 cents per gallon off service station price (except Toronto and Hamilton cities which are—open dealers 2½ cents off service station price) 1 cent additional to 100 per cent accounts.

Naphtha

STANDARD OIL CO (INDIANA)

	Tank wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago, March 12, 1935. Each of above prices subject to discount of 1 cent per gallon for 150-gallon lots if covered by contracts.

New York and New England

SOCONY-VACUUM CO., INC

	Gasoline: Posted dealer	Service station	Incl'ds tax	Kero. tank wagon
Albany, N. Y.	14.0	17.5	5.0	8.5
*Met. New York	13.5	16.0	5.0	7.75
*Br'kl'n, Queens	13.0	15.5	5.0	7.75
Buffalo	14.7	18.2	5.0	8.0
Rochester	14.7	18.2	5.0	8.5
Syracuse	14.5	18.0	5.0	8.75
Boston, Mass.	11.8	14.3	4.0	7.5
Portland, Me.	14.5	18.0	5.0	8.75
Manch't'r, N.H.	14.6	18.1	5.0	9.0
Burlington, Vt.	16.0	19.5	5.0	9.0

*Includes 2 per cent city sales tax.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline: Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Ohio points	16.25	18.25	5.0	*11.5

*Includes state tax of 1 cent, effective July 22.

Retail Price Changes

Regular-Grade Gasoline and Kerosene

Standard Oil Co. of Indiana, April 20, advanced tank wagon and station gasoline and tank wagon kerosene .1 cent in Decatur, Peoria, Mason City, Duluth, Green Bay, Milwaukee, Detroit, Grand Rapids, Indianapolis, Kansas City, St. Louis and St. Joseph; advanced tank wagon kerosene .1 cent in Davenport.

Standard Oil Co. of Nebraska, April 20, advanced tank wagon and station gasoline and tank wagon kerosene .1 cent throughout Nebraska.

Continental Oil Co., April 16, advanced tank wagon and station gasoline .5 cent in Casper, Cheyenne and Albuquerque.

Standard Oil Co. of Kentucky, April 13, reduced tank wagon kerosene 2 cents in Augusta.

Standard Oil Co. of New Jersey, April 9, reduced tank wagon gasoline .25 cent and station gasoline .5 cent in Wheeling. April 12, reduced tank wagon gasoline 1.35 cents and station gasoline 2.6 cents in Spartanburg. April 15, advanced tank wagon and station gasoline .5 cent in Richmond. April 13, reduced tank wagon gasoline, .25 cent and station gasoline .5 cent in Roanoke; April 14, further reduced tank wagon gasoline .25 cent and station gasoline .5 cent; April 16 further reduced tank wagon gasoline .25 cent and station gasoline .5 cent; April 17, further reduced tank wagon gasoline .25 cent and station gasoline .5 cent. April 15, reduced tank wagon gasoline .95 cent and station gasoline 1.7 cents in Salisbury.

Standard Oil Co. of Louisiana, April 8, advanced tank wagon and station gasoline 1.5 cents in New Orleans and Shreveport; advanced tank wagon and station gasoline 1.3 cents in Baton Rouge and Lake Charles; advanced tank wagon and station gasoline .9 cent in Alexandria; advanced tank wagon and station gasoline 1.2 cents in LaFayette; advanced tank wagon gasoline 1.8 cents and station gasoline 2.8 cents in Knoxville; advanced tank wagon gasoline 1.5 cents and station gasoline 2.5 cents in Memphis; advanced tank wagon gasoline 2 cents and station gasoline 3 cents in Chattanooga and Nashville; advanced tank wagon and station gasoline 1.5 cents in Bristol.

Standard Oil Co. of California, April 13, advanced tank wagon and station gasoline 2.5 cents in Los Angeles.

Atlantic Refining Co., April 11, advanced tank wagon kerosene .5 cent in New Haven; advanced tank wagon and station gasoline .1 cent in Worcester and Hartford; advanced tank wagon and

(Continued on Page 32)

NEWS FOR SALES DEPARTMENTS

Filling Station Site Must Be Appropriate

In an unusually interesting and comprehensive article in the Tide Water World, Edward Franklin, service manager of Tide Water Oil Co., stresses the importance of the service station in the distribution of gasoline and other petroleum products.

Of particular importance, in the marketing of gasoline, it is pointed out, is the selection of the site and platform. "The selection of the site and platform," Mr. Franklin states, "is obviously a vital matter. This is the last step in narrowing down the general and regional plans to a specific project. In the selection of the site the chief factors to be considered are the character of the community, or neighborhood, from which the station is to draw its regular customers, and its relationship to the system of highways and streets by which it is approached and from which it must obtain a certain amount of passing or transient business. Due weight is given to the economic future of the community and consideration to probable changes in the highway and street systems, looking ahead if possible for a decade.

"With regard to the site itself, our marketer will, whenever possible, choose one which is level, and which presents no unusual obstacles to development such as the removal of rock formations or the estoppage of ground water.

"He will confine his choice to sites clearly visible from every chief approach and large enough in area to provide ample accommodation for the traffic to be served. He will see to it that the dispensing equipment is so arranged as to allow at least two or three cars to draw up to the pumps simultaneously.

"In choosing sites he will bear in mind the availability of locations to which delivery by tank car could be made.

"He will apply the rule of simplicity to equipment. Bearing in mind that changes in automotive design dictate the scrapping of even the best equipment from time to time, he will avoid equipment which is excessively intricate or costly. He will thus avoid heavy writeoffs and capital losses which eat profits.

"He will install wherever possible electric pumps with meters of the positive displacement type, so that he may deliver the product to the consumer in a clean, fast and accurate manner.

"He may find it advisable to provide one manual pump at each station to serve in emergencies should the electric current fail.

"He will connect his pumps either to 550 or 1,000-gallon underground tanks, preferably the latter size for economy of operation. He will choose a welded tank, fabricated from one-quarter inch open-hearth process plates. He will see to it these tanks are set well below the frost line, at a slight pitch away from the foot of the suction line, and that each tank is properly vented.

HEADQUARTERS MOVED

The National Oil Burner Dealers Association desires to announce that on and after May 1, 1935, the general headquarters of the association will be located at 1440 Broadway, New York City, where activities in behalf of the retail outlets selling oil burners in the United States will be actively continued.

GASOLINE STANDARDIZATION

TORONTO, Ontario, Apr. 23.—Representatives of six Canadian provinces with producers and dealers and representatives of the National Research Council held a conference here recently when tentative plans were made for the standardization of gasoline and fuel oil in eastern Canada. Dr. H. M. Tory, chairman of the council, states that the standardization experiment will be given a trial in the eastern provinces, after which a western conference will be held.

Motor Output in First Quarter Best Since 1929

An encouraging outlook for gasoline and motor oil demand is seen in the activity of the automobile industry in 1935.

Motor vehicle production in the first quarter of this year was the best since 1929, the monthly production estimate released today by the Automobile Manufacturers Association disclosed.

With an estimated output of 447,561 units for March, the industry's first quarter production of 1,109,591 vehicles represented an increase of 48 per cent over the same period of last year. The industry's March output was a gain of 25 per cent over that for the preceding month and was an increase of 30 per cent over March a year ago.

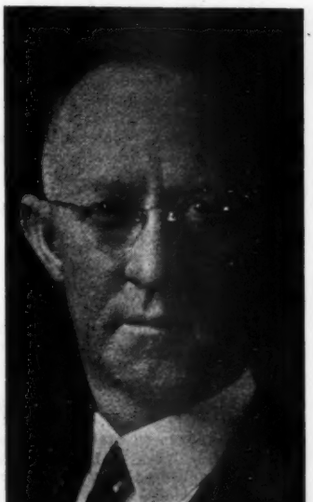
National Fuel Oil Tax Bill Opposed by A.O.B.A.

The members of the American Oil Burner Association who held their twelfth annual convention recently at Atlantic City took recognition of a bill now pending in Congress providing for one-half cent tax on all sales of fuel oil and Diesel oil. The burner manufacturers in a letter to the Ways and Means Committee which now has the bill introduced by Congressman Lloyd of Washington made known their opposition to the bill which is said to have the sponsorship of the coal interests who thus seek to weaken the position of oil as a competitive fuel.

"A utilization of a natural resource that contributes to a high standard of living contributes to the wealth of the nation" the association said in its letter to the Ways and Means Committee: "Oil burners are a distinctive contribution to the American standard of living both as to health and comfort in the home and in industry. Because of the vision and courage displayed in their development in a little more than a decade, they are now installed in the homes of 1,000,000 owners and represent to those users an investment of nearly one-half billion dollars. Oil burners are dependent upon fuel oil for their operation and this bill proposes a levy upon a commodity which is as necessary to the comfort and health of our people as are food and clothing. The investment of commercial and industrial users is many times greater."

W. J. Smith of Cleveland Steel Products Corp. was elected president of the association at the annual meeting succeeding R. M. Sherman. Vice presidents elected were W. F. Brannan, J. A. Lattner, E. A. Halleib and M. F. Cotes. President Smith announced that the Executive Committee had been empowered to formulate plans for a new program covering the association's activities which would be presented at the next board meeting to be in July at Cleveland. The directors voted to return the association to its original status as a manufacurers' organization.

O. J. TUTTLE » » »



SOME men have been fortunate in finding short cuts to executive positions while others have taken the hard knocks along the normal routine of loyalty and application in their work to arrive at the same end. O. J. Tuttle, sales manager for the Empire Oil & Refining Company, is one of the latter.

Twenty years ago he took the job of office manager at the Gainesville, Tex., refinery of the Producers Refining Company. The plant was one of several in the "Evans-Twing group" and typified the rapidly developing Mid-Continent refining industry.

Aided by war time prices the Gainesville plant became an important unit within the North Texas refining area. It attracted the attention of the Cities Service Company and the refinery was purchased by it. O. J. Tuttle was asked to remain on the job when the plant changed hands and early in 1919 was transferred to the Tulsa offices of the parent company as second assistant sales manager. The Empire group of refineries included plants at Ponca City, Oklahoma City, and Cushing, Okla.; Independence, Kans., and Gainesville, Tex. The work of correlating the sale of products from these units required patience and involved details for which O. J. Tuttle has more than the usual capacity.

A vacancy in the organization moved him into the office of assistant sales manager within less than a year after coming to Tulsa. In the meantime Cities Service acquired refining properties at East Braintree, Mass., and in 1923, Mr. Tuttle was called to Boston to take charge of sales for the new subsidiary, the Cities Service Refining Company. Remaining in that work a little more than a year, he was called back to Tulsa to head the sales offices of the expanded Empire group.

In his present work, O. J. Tuttle is responsible for the sale of all products from the plants of the Empire including the 25,000-barrel refinery at East Chicago, Ind., the 12,000-barrel plant at Ponca City, Okla., and the 4,000-barrel plant at Okmulgee, Okla.

California Tax Returns in February Continue to Gain

Continuing an upward trend begun last December, gasoline taxes assessed to California oil companies for February total $3,063,237.07, or $268,109.43 more than the corresponding figure for the same month a year ago, according to Fred E. Stewart, State Board of Equalization member.

Cautioning that there is considerable fluctuation in the tax from month to month, Stewart warned that the increase may not continue to be so brisk. He predicted, however, that the yield will be larger for the year than ever before. Oil companies listing sales of more than $1,000,000 are listed below.

Name—	Gallons actually sold	Net taxable gallonage
Associated Oil Co.	15,482,302	7,843,988
Bell View Oil Synd.	1,075,389	1,086,252
Caminol Co.	2,451,392	2,483,668
F. R. Long, Inc.	1,737,120	29
General Pet. Corp.	14,136,862	6,920,175
Macmillan Pet. Corp.	1,989,940	2,008,750
Western Oil & Ref. Co.	1,850,226	1,864,937
Gilmore Oil Co.	5,623,820	117,845
Hancock Oil Co.	2,847,495	2,817,999
Lomita Gasoline Co.	1,090,355	None
Los Nietos P. & R. Co.	2,707,391	None
Richfield Oil Co.	9,417,368	9,025,975
Mohawk Pet. Co.	2,314,238	1,982,140
Norwalk Co.	1,908,503	1,000,602
O. C. Field Gas. Corp.	1,875,408	8,196
Olympic Ref. Co.	1,122,721	1,119,535
Petrol Corp.	1,081,723	1,047,727
Rio Grande Oil Co.	2,911,856	2,855,305
R. R. Bush Oil Co.	1,066,057	1,009,911
Seaside Oil Co.	2,336,508	1,224,674
Shell Oil Co.	30,028,974	9,210,895
Signal Oil & Gas Co.	1,112,264	None
Signal O. & G. of Calif.	3,737,193	None
Standard Gasoline Co.	2,355,130	None
Standard Oil Co.	51,555,032	19,635,172
St. Helens Pet. Co.	1,049,679	1,010,606
Sunset Oil Co.	3,716,299	1,404,399
Texas Co.	8,549,163	4,607,861
Union Oil Co.	16,088,955	9,249,831
Western States G. Corp.	3,103,243	None
Wilshire Oil Co.	3,359,646	3,389,549

GASOLINE HEARING CONCLUDED

REGINA, Saskatchewan, Apr. 20.—The federal tariff board, headed by Hon. G. H. Sedgwick, recently concluded its public hearings in Regina, Saskatchewan, in connection with the gasoline enquiry authorized by the federal government some weeks ago.

Representations heard at the Regina sitting were largely from farm and cooperative marketing organizations, which urged that the tariff on gasoline and petroleum products increased the cost of farm operations and was not necessary for the protection of the Canadian refining industry.

Representatives of the oil companies gave evidence, but the major part of their testimony was reserved for a future sitting to be held at Ottawa.

D. L. Harper Is Elected Director of New Jersey

NEW YORK, Apr. 23.—Donald L. Harper, who has been connected with the company for the past 36 years, today was

D. L. HARPER

elected a member of the board of directors of the Standard Oil Co. (New Jersey). Mr. Harper has been active in the foreign sales operations of the company and has been president of the Standard Oil Export Corp., since its organization in 1928. He is also a vice president of the Pan American Refining Corp.

Arkansas Offers Bonus for New Oil Discovery

EL DORADO, Ark., Apr. 22.—The Arkansas Board of Conservation announces that the 1935 General Assembly of the State of Arkansas passed a bill introduced by Senator Marlin, known as Act 201, entitled "A bill for an act to be entitled 'An act to provide for the payment of a bonus for the location of new oil fields or horizons and making appropriation therefor'."

The bill provides, among other things, a bonus of $1,000 be paid for the discovery of a new and now entirely unknown productive horizon in areas which are producing or which have produced commercial quantities of oil, confining this proposition to Union, Miller, Columbia, Nevada, Ouachita and Lafayette Counties.

This bill provides further that for a discovery well in any other county of the State of Arkansas, which would be purely wildcat, the discoverer would receive the sum of $5,000 as bonus.

Better Tone Continues in Eastern Gasoline Market

(Continued from Page 27)

The demand for residual oils from industrial and marine consumers is steady and there have been no important changes in prices. The bunker price at the Gulf is 80 to 85 cents per barrel. The gas oil price at the Gulf and along the Atlantic seaboard is also firm. East Texas crude oil is quoted at the Gulf at $1.18 and $1.19.

No important price changes were reported in the lubricating oil list. The steam refined stocks and bright stocks both from Pennsylvania and western oils continue at price levels which are unsatisfactory to the sellers. The demand in bright stocks centers in the lower viscosity stocks. The sellers continue to feel that prices will advance to higher levels in the near future.

The wax market is more active with fractional advances in the crude scale grades. The low on the latter is now 2 cents with quotations up to 2.35 cents. The refined grades continue to be quoted over wide price ranges. Export sales of this material have increased since the first of the month.

Opening of Three New Esso Stations in St. Louis Is Considered Significant

NEW YORK, Apr. 23.—Invasion of the marketing territory of the Standard Oil Co. (Indiana) in the Middle West on a wide scale by the Standard Oil Co. (New Jersey), which has been predicted for some time, assumed definite form this week with the announcement that Esso, Inc. was opening three filling stations in St. Louis.

Esso, Inc. is a domestic marketing organization of the Standard of New Jersey which, through four units, operates in 18 states and the District of Columbia. These companies include Standards of Pennsylvania, Louisiana and New Jersey and the Colonial Beacon Oil Co.

These companies operate in all the states east of the Mississippi River with the exception of those included in the marketing territories of the Standards of Kentucky, Ohio and Indiana. West of the river the companies operate in Arkansas and Louisiana. The Humble Oil & Refining Co., which is a Standard of New Jersey subsidiary, markets in Texas but is not one of the Esso group.

At the time of the organization of Esso, Inc., it was understood that the company planned to extend its marketing operations into states where other Standard units are now operating. It is said that the company has been incorporated in several states outside the territory in which the company is now operating. Through the use of Esso name and trademarks for products the Standard of New Jersey has the nucleus for the nation-wide distribution of its products without confusing its operations with other Standard companies should the company expand its marketing facilities into all states.

Except to confirm the entry into St. Louis the New Jersey officials have refused to make any comment regarding their plans for expansion into the marketing territory of the Middle West.

It is assumed that if the company should expand its operations so that it became an important factor in the section, it would be necessary to build or acquire refining facilities or provide refinery products through water and pipe line transportation. Its closest refineries to St. Louis are the Baton Rouge, La., refinery of the Standard of Louisiana, and the Parkersburg, W. Va., plant of the Standard Oil Co. of New Jersey. Both the Standard of Indiana and the Socony-Vacuum Oil Co., Inc., through the Lubrite division as well as the Shell interests have refineries in the St. Louis area.

Weather Spurs Gasoline Market in Group 3 Area

(Continued from Page 26)

gasoline he will reap a profit of three-eighths cent on each gallon of natural he blends with his refinery product.

Kerosene Steady

Kerosene exhibited a steadying tendency. Further tightening of the market was regarded as likely, although the probability of sufficient improvement to cause any increase in quotations was believed rather remote. Demand was chiefly from agricultural area.

Furnace oils were still holding up, but a sudden drop was recognized as imminent with continuation of spring-like weather.

Cracking stock was strong, with prices nominal, for about all of this material sold was that coming from refineries making straightrun product only. Refiners having cracking units are using their own material to swell their gasoline gallonage.

The whole lubricant list was reported steady. Wax displayed a slightly better tone, with likelihood of improved prices.

Pipe Line Construction

FORT WORTH, Tex., Apr. 22.—Lone Star Gas Co. is laying 10 miles of 12-inch line from Riesel Station to Waco, both in McClennan County. This line ties the Long Lake, Anderson County, gas area into Waco, a 12-inch line having been completed from that field to Riesel Station late last year. The company is expected to lay about 100 miles of gas line from Anderson and Freestone counties to connect with the Fort Worth-Dallas trunk system some time in the near future. This line will probably be a 20-inch line.

Gulf Pipe Line Co. is laying about 12 miles of 6-inch line to connect with its three recently completed wells in the newly discovered Camp Hill pool, Anderson County, 7 miles southwest of Palestine, to connect with its West Texas-Gulf Coast system at Elkhart Station to the southwest. There are two 8- and one 6-inch line in this system. Laying the connecting line presages considerable drilling in the new area.

East Texas Reported in Better Condition

(Continued from Page 16)

will be the light fractions that would form gasoline if the oil is refined.

In Smackover it was the common custom to boil the water out of the crude and sell the residue for fuel oil. The boiling was done in open vats and it was necessary to heat the oil and water to more than 212° F. in order to drive off the water in the form of steam. Some water settled out during the boiling process but around all vats there was a cloud of steam visible indicating high temperatures and losses of light fractions of the crude oil.

RETAIL PRICE CHANGES

(Continued from Page 30)

station gasoline .3 cent in Providence. April 15, reduced tank wagon kerosene .5 cent in Hartford.

Socony-Vacuum Oil Co., Inc., April 10, advanced tank wagon and station gasoline .5 cent in Albany. April 10, advanced tank wagon and station gasoline .3 cent in Metropolitan New York; April 18, advanced tank wagon gasoline .45 cent and station gasoline .2 cent. April 10, advanced tank wagon and station gasoline .3 cent in Brooklyn, Queens; April 18, advanced them .2 cent further. April 10, reduced tank wagon gasoline 1.2 cents and station gasoline 2.7 cents in Boston; April 11, advanced tank wagon gasoline .5 cent and station gasoline 1 cent. April 12, advanced tank wagon gasoline 3.7 cents and station gasoline 4.7 cents in Buffalo; advanced tank wagon gasoline 1.45 cents and station gasoline 2.2 cents in Rochester; advanced tank wagon gasoline 1.25 cents and station gasoline 2 cents in Syracuse. April 10, advanced tank wagon and station gasoline .3 cent in Burlington; April 20, reduced them .3 cent.

Magnolia Petroleum Co., April 18, advanced tank wagon gasoline .4 cent and station gasoline 1 cent in Fort Smith; reduced tank wagon gasoline .1 cent and advanced station gasoline 1 cent in Little Rock; advanced tank wagon and station gasoline 1 cent in Texarkana.

April 12, reduced tank wagon kerosene 1 cent in Little Rock. April 15, reduced tank wagon gasoline .5 cent in Fort Smith.

May Crude Allowable Increased 33,900 Bbls.

WASHINGTON, D. C., Apr. 22.—A number of changes in state oil production allowables aggregating a total increase of 33,900 bbls. daily was authorized for May in an order announced by Administrator Ickes. Production for May was placed at 2,561,200 bbls. daily compared with 2,527,300 in April.

The allowable was recommended to Administrator Ickes by the Bureau of Mines and the Petroleum Administrative Board, and concurred in by the Planning and Coordination Committee.

In general the changes were in the nature of increases to permit higher gasoline allowables to balance the seasonal increase in demand, as follows:

Arkansas, off 400 to 30,300; California, up 900 to 494,200; Colorado, up 200 to 3,900; Illinois, no change; Indiana, off 300 to 2,000; Kansas, up 7,400 to 148,400; Kentucky, down 800 to 14,500; Louisiana, up 1,200 to 112,200; Michigan, up 1,600 to 34,300; Montana, up 1,300 to 11,000; New Mexico, up 1,800 to 51,500; New York, up 200 to 11,900; Ohio, no change; Oklahoma, up 6,900 to 500,200; Pennsylvania, up 200 to 44,500; Texas, up 11,900 to 1,032,900; West Virginia, no change; and Wyoming, up 1,600 to 36,100.

The new allowables become effective at 7 a.m. (Standard time at place of production) May 1.

Substitute Panhandle Pipe Line Bill Offered

AUSTIN, Tex., Apr. 22.—The House committee has approved by a vote of 11 to 5 a substitute bill to permit the State to construct a gas line from the Panhandle to St. Louis and Detroit. The new bill restricts the powers of the corporation set up to operate the line, compared with the first bill sent to the legislature by Governor Allred. As redrafted, the bill prevents the corporation entering the oil pipe line business, and the life of the corporatiaon would be limited to 50 years.

The corporation would not be permitted to go into the gas producing business as long as a sufficient supply was available from private sources. It could not build lines to towns already served. The corporation is also forbidden the right to acquire by eminent domain the properties or facilities of any public service corporation in a similar business.

Another amendment would put operating costs on a par with private lines by requiring payment of all taxes now paid by gas companies.

Announce Next Meeting Refinery Review Board

The Refinery Board of Review announces its next regular monthly session will be held in the Investment Building, Washington, D. C., at 10 a. m., Monday, May 6.

All refiners desiring to file exceptions to the May gasoline production quota established for them are requested to file notice of appeal by telegraph at the earliest possible date.

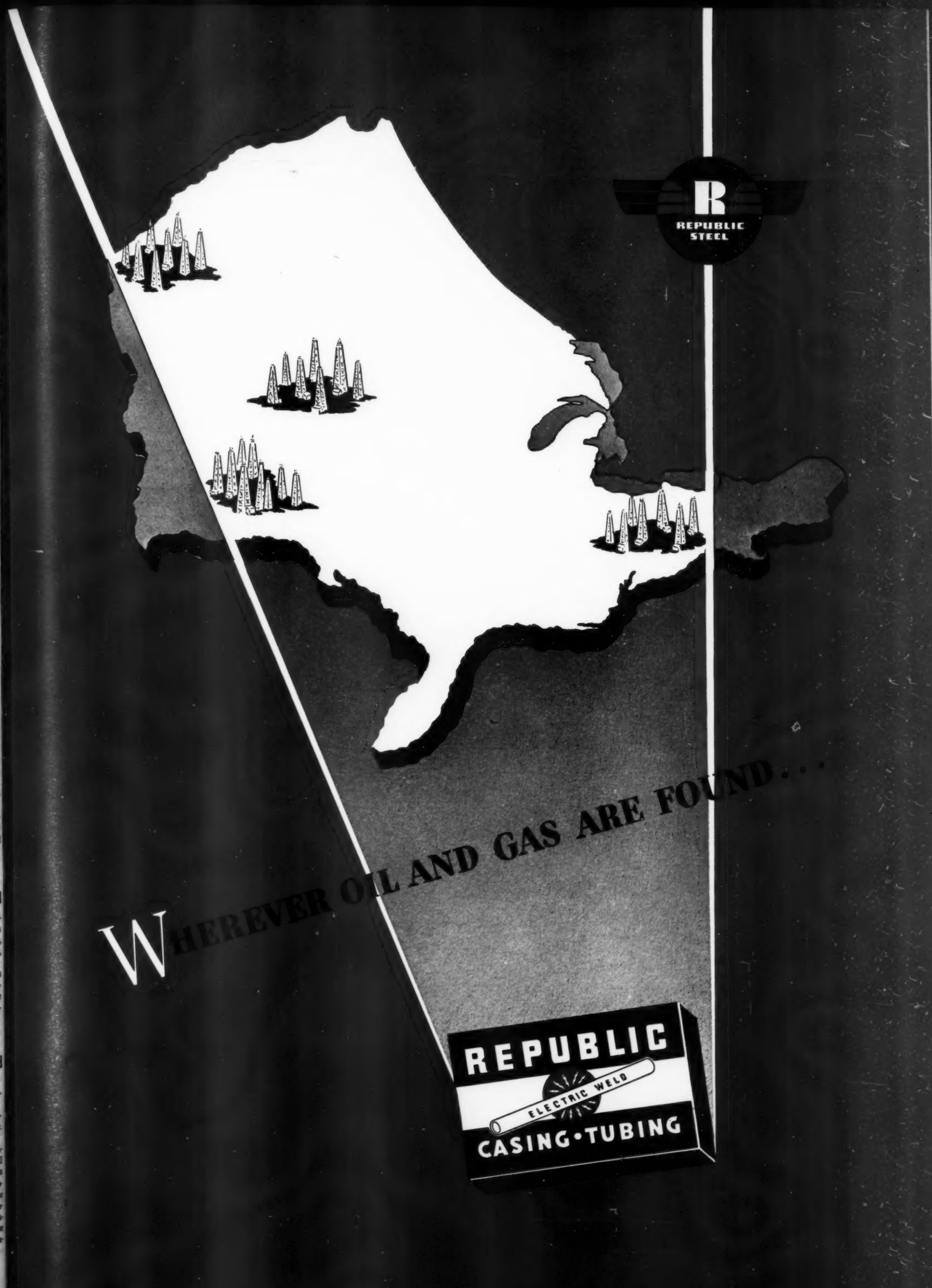
Drastic Truck and Bus Regulation Bill Passed

(Continued from Page 12)

ister the provisions with respect to interstate commerce," he declared.

Referring to the rate regulating provisions of the present measure, Mr. Reeves observed:

"We cannot understand how the regulation of rates of the comparatively small percentage of motor trucks engaged in 'for hire' highway transportation can possibly do anything other than to freeze the rates of 'for hire' operators and so imperil their opportunity to attract the tonnage of shippers who may otherwise use their own vehicles free from all regulation of this type."


R
REPUBLIC
STEEL
WHEREVER OIL AND GAS ARE FOUND . . .
REPUBLIC
ELECTRIC WELD
CASING • TUBING

REPUBLIC

ELECTRIC WELD

CASING • TUBING

STANDING *hard* SERVICE IN EVERY FIELD

Republic Electric Weld Casing and Tubing are acknowledged a step ahead in every field where they have been used.

Their high yield point, high ductility, sound weld, perfect roundness, uniform wall thickness, straightness and perfect threads combine to make them products that operating men who have tried them need never question. And only in casing and tubing made by Republic's patented process of electrical resistance welding will all these qualities be found.

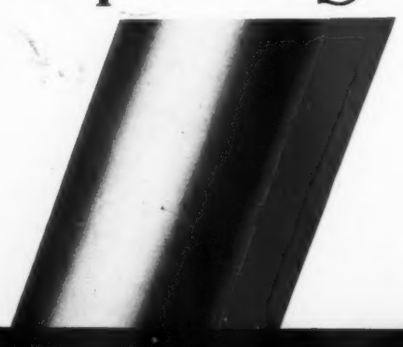
Republic has a new 64-page hand book on setting depths and bursting pressures for all sizes and grades. Send for your copy.

Republic Steel

REPUBLIC STEEL

CORPORATION

GENERAL OFFICES · · · YOUNGSTOWN, OHIO



Some Practical Examples of Magnetic Prospecting

By W. P. JENNY
Consulting Geologist and Geophysicist, Houston, Tex.

The basic idea, prevalent in former years, that the magnetic effect is almost exclusively due to the chemism or the tectonic dislocations of the "basement" rocks underlying the oil areas, has led to many misinterpretations and has in many places discouraged magnetic prospecting, because under this assumption the station net was laid out on too wide a scale and therefore would not permit the location of anomalies as due to shallow local structures, and the accuracy of the field measurements was unduly neglected.

Today we know that sufficient difference in the magnetic susceptibility exists within the sedimentary columns to produce noticeable magnetic anomalies above structures of commercial interest.

Stratigraphic changes, thickening and thinning of beds can magnetically be discovered and traced. Thus the magnetic method unquestionably offers great assistance towards the solution of stratigraphic and reflection problems in the Gulf Coast and elsewhere.

During the past few years the magnetic method has been greatly improved mainly on account of an increased accuracy in the field and greater experience in its interpretation.

A few practical examples of magnetic surveys may demonstrate the possibilities and economical value of this method.

Garber and Oklahoma City

As first examples of magnetometer work in the oil regions of the United States, note the magnetic profiles and geologic cross sections for the Garber Field (Garfield County) and the Oklahoma City Field (Oklahoma County), both in the State of Oklahoma.

Both structures lie along the southern extension of the Nemaha granite ridge, which extends in a south-southwesterly direction across Kansas. Results of deep tests in the Garber Field have indicated a relatively thin section (1,250 feet) of Arbuckle limestone on top of the pre-Cambrian granite and similar conditions may also be assumed for the Oklahoma City Field.

In both anticlines the Arbuckle dolomite has been uplifted by about 2,000 feet. The east flank of the Oklahoma City structure is cut off by a fault with a throw of about 1,800 feet.

The magnetic survey of the Oklahoma City structure was made before the development of the field. The survey of the Garber structure has been made after development of the field and therefore the minimum reading might be about 50 gammas lower than would actually correspond to the structure.

The striking feature of the magnetic profiles is that both structures show up as most decided magnetic "lows."

These "lows" could be explained by the assumption that the granite protrudes through stronger magnetic shists. In the case that the granite ridge should create a magnetic positive anomaly, the structures might lie at the northern ends of segments of the granite ridge and the magnetic "lows" might then be explained as due to the induced polarity.

In as much as the thick Arbuckle dolomite, which may be assumed as practically nonmagnetic, is normally overlain in the area of the two structures by about 6,000 feet and 8,000 feet respectively of partly highly ferruginous shales and sandstones, the writer ventures to suggest, that the Arbuckle anticlines, piercing into and displacing higher magnetic shales and sandstones, might be the direct reason for these magnetic "lows." This suggestion is supported to some extent by the magnetic fault to the east of the Oklahoma structure, since the higher reading at Station 1 seems to indicate that a relatively shallow magnetic horizon has been uplifted on the upthrown side of the fault.

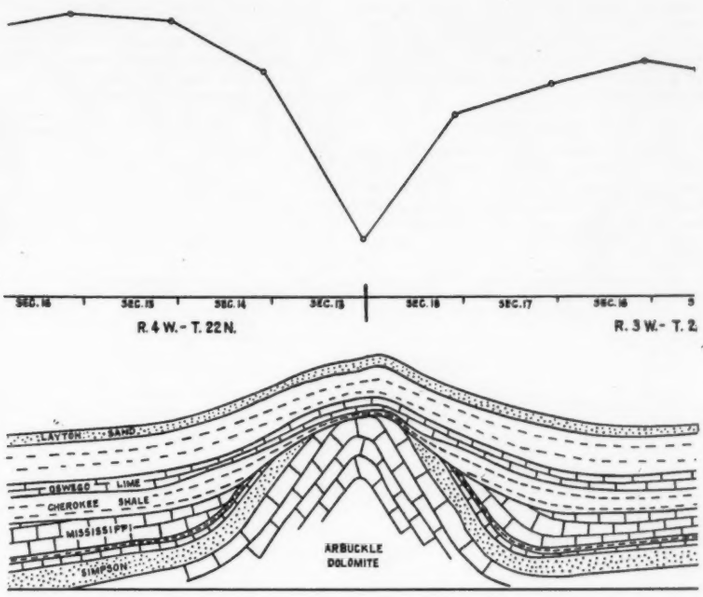


Fig. 1—Profile of vertical magnetic intensity and geological cross section across the Garber Field (after Spraragen)

Hobbs Field

As another example may be mentioned the Hobbs Field, Lea County, New Mexico. In Figure 3 are shown the magnetic isogams and the contours drawn on top of the "brown lime."

The Hobbs anticline has a northwesterly direction and about 250 feet of uplift. The stratigraphical section is composed of Tertiary sands capped by Caliche (200 feet), Triassic and Permian red beds (1,300 feet), potash-bearing salt (1,400 feet), anhydrite with limestone, sand and shale (1,200 feet), underlain by the producing horizon, the "white lime." The "basement" is vaguely assumed to lay at about 10,000 feet.

The fold is magnetically indicated by a pronounced "maximum" in the southwesterly part and a "minimum" in the northwesterly part. The writer is inclined to interpret these features as due to the induced polarity in a deep anticlinal ridge, which lies essentially below the producing structure. The small uplift in the shallower beds does probably not materially affect the magnetic picture.

Hart Field

An example for the conclusions, which can be drawn from magnetic vector investigations is given by the magnetic study of the recently discovered Hart Field, Oceana County, Michigan.

The direction of the local magnetic force as indicated by the vector at Hart

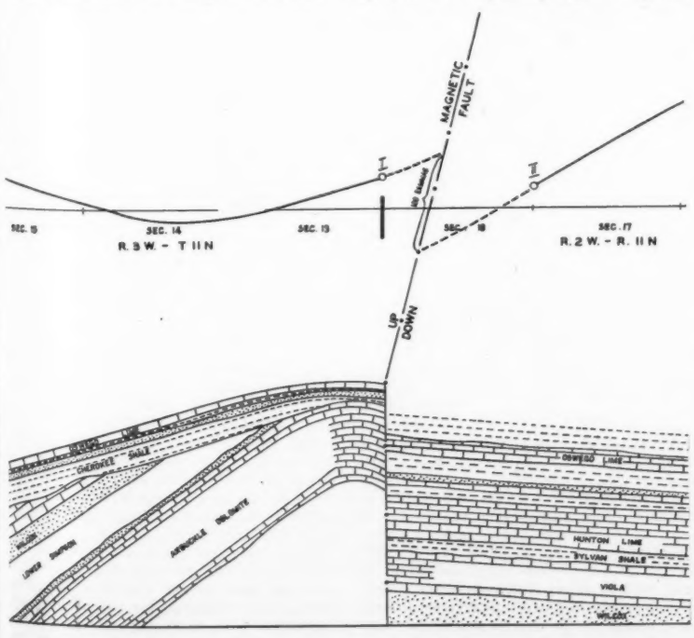


Fig. 2—Profile of magnetic vertical intensity and geological cross section across the Oklahoma City Field. (Magnetic data from Clifford's map, geological cross section after Charles)

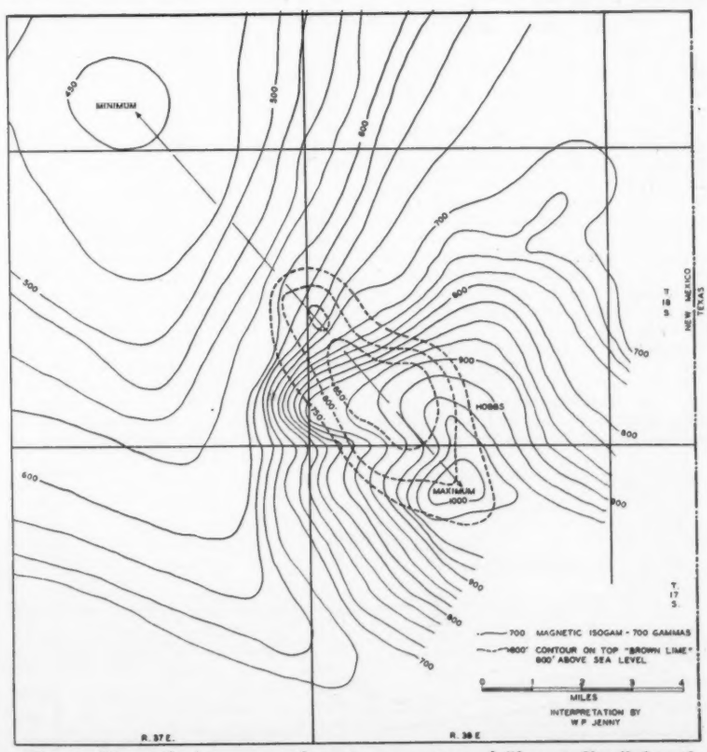


Fig. 3—Magnetic isogams and contours on top of "brown lime" for the Hobbs Field, N. Mex. (Magnetic data after Caudill and others, personal communication, geological data after Deford and Wahlstrom)

suggests a magnetic "high" to the southeast, which might correspond to an uplift with a possible northeast-southwesterly axis. A short magnetic survey of the area (Figure 4) has fully confirmed this suggestion.

Yoast Field

The above four magnetic anomalies are well pronounced. Minor structural features produce as a rule much smaller anomalies, of which an example is given by the magnetic survey of the Serpentine mass at Yoast Field, Bastrop County, Texas.

In as much as the center of the vertical intensity high anomaly occurs over the fault near the highest part of the mushroom top of the Serpentine mass, Collingwood infers that the high anomaly is due to a small neck or vent fillings of igneous rocks in the fault plane, below the top of the Austin chalk.

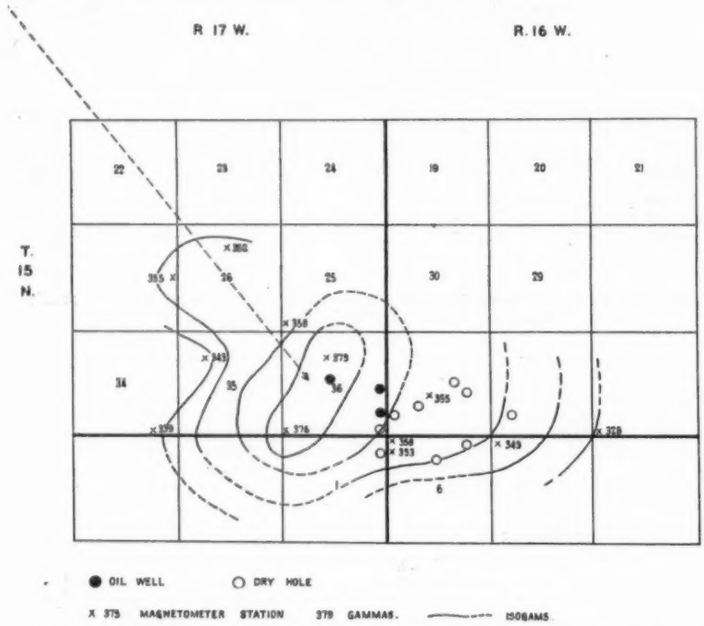


Fig. 4—Magnetic study of Hart Field, Oceana County, Michigan

Gulf Coastal Area

The regional magnetic anomalies for part of the Gulf Coastal area of Texas, in the general neighborhood of Houston, are shown in Figure 6.

The writer is inclined to interpret the magnetic positive trend to the south of the dotted line as due to a thickening of the partly highly ferruginous sediments of Eocene and younger age and the magnetic negative trend through Galveston as due to a thinning of these sediments. Thus the magnetic "high" between Houston-Beaumont would indicate a basin and the magnetic low trend at Galveston an anticlinal trend in the deeper Gulf Coastal strata. The depth to the "basement" is estimated at from 20,000 to 30,000 feet.

To the north of the dotted line magnetic high trends seem to represent anticlinal structural trends and magnetic low trends synclinal structural trends.

The main fields, Conroe, Tomball, Livingston and Spurger, lie along magnetic high trends. It is interesting to note that these fields are gravimetric minima. This might indicate that they are deeply buried salt domes along anticlinal structural axes. On the other hand, a large number of tests drilled on gravimetric minima, which lie along magnetic low trends, for example, along the trend which extends from a point west of Conroe towards the Schwab area, were found to be structurally normal, or even low. In these cases the gravimetric minima were probably not produced by a salt uplift, but by the magnetically indicated syncline.

The Tomball Field lies along and slightly to the northwest of the respective magnetic high trend; it is of interest to note that recent surface work (Doering) has revealed a surface "high" in the same relation to the field.

The position of the dotted line has been determined on the strength of magnetic and stratigraphic data. Along this line a sharp flexur in the deeper strata is presumed by the writer. This trend is of special interest, because it appears to represent an area of particular discrepancies between paleontological and geophysical evidence.

Kittrell Field

Like other geophysical methods, the magnetic method does not always yield results as definite as the examples shown above. Though a structure of appreciable size failing to produce a magnetic anomaly of at least 10 to 20 gammas, should be a rare case, such anomalies may not always be readily interpreted in terms of structure. As an example the magnetic picture of the newly discovered Kittrell Field is shown. The field lies in southwestern Houston County, Texas, about 25 miles north of Huntsville and consists

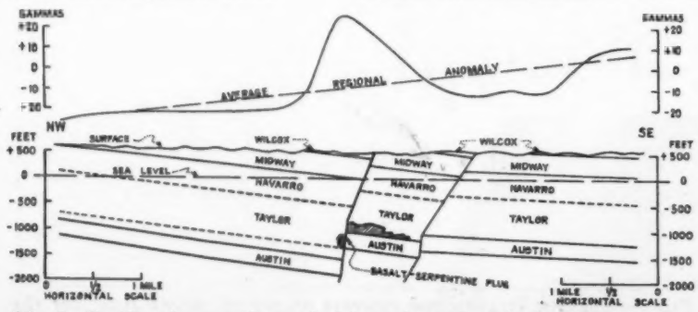


Fig. 5—Profile of magnetic vertical intensity and geological cross section across the Yoast Field, Bastrop County, Texas (after Collingwood)

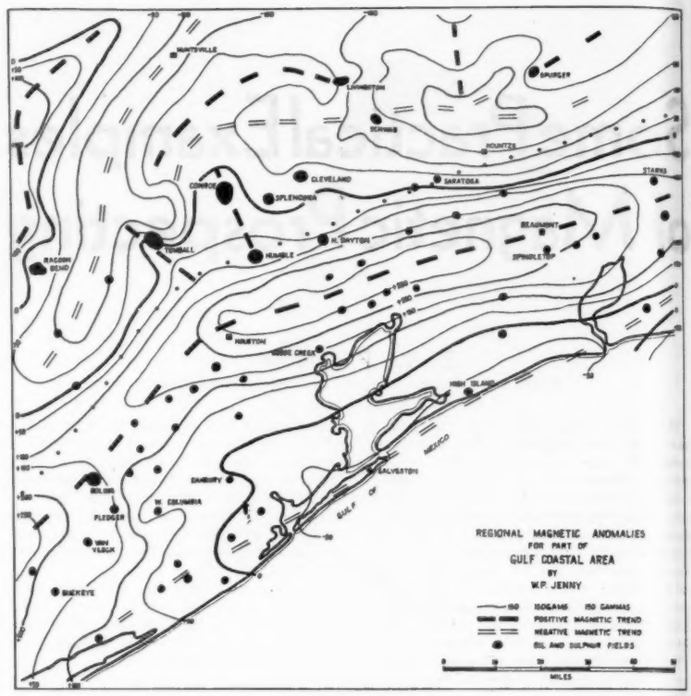


Fig. 6

so far of two producers and a number of dry holes.

We notice a uniform increase of the magnetic intensity from the town of Trinity towards the northwest. Two miles to the southeast of the discovery well, No. 1 Boone, the equal spacing of the isogams is interrupted. A magnetic "low" is developed between the 130 and 120 isogams. The axis of this "low" trends towards the discovery well. About 2 miles south a parallel high trend seems to be indicated. These two trends were tentatively interpreted in the early stage of the field as indicative of a cross-dip-fault as shown in the picture. The further drilling did not prove nor disprove this suggestion so far. The fact that until now little oil has been found and only in the northwestern, i.e., up dip, areas of the supposed fault would rather be in favor of this theory, since such a cross-dip-fault might be a poor trap for oil. The magnetic picture could, however, be explained in many different ways. However, a northwest-southeasterly structural axis seems to be fairly definitely indicated, and the probability for further development to the southeast of the discovery well appears to be greater than towards the southwest.

Such information may not be significant enough for the location of wells, but it might be of great importance for leasing propositions in wildcat plays or for a more economical layout of reflection seismograph and torsion balance surveys, especially where the time element plays an important role.

Buckeye Field

The semiregional magnetic isogams in the area of the Buckeye Field, Matagorda County, Texas. This field, presumably located on a deep seated dome, is a magnetic discovery as shown in Figure 8. The development so far coincides more or less with the townsite. The picture shows a semiregional closure of about 5 to 10 gammas. More detailed work in the area of the wells is no more possible on account of the magnetic effect of the casings.

It is fair to draw attention to the fact that the magnetic method is credited with the discovery of a deep seated dome. Though the writer so far has never failed to observe local magnetic anomalies above proven or semiproven prospects, yet the actual test of a geophysical method lies in the discovery of a new structure. By

(Continued on Page 48)

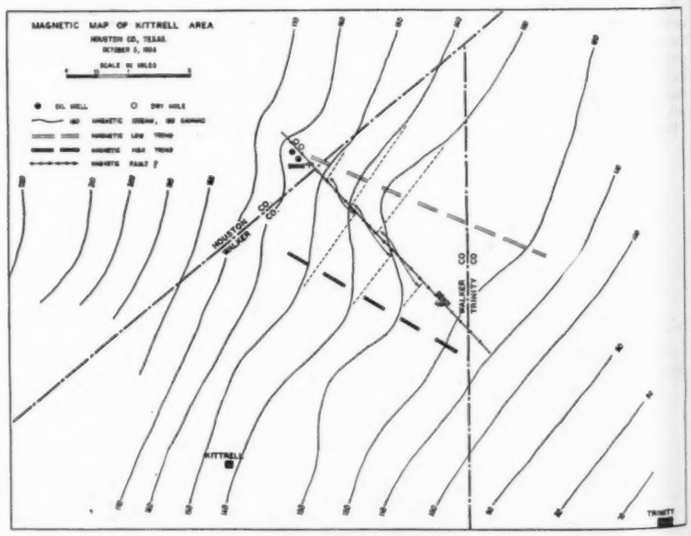


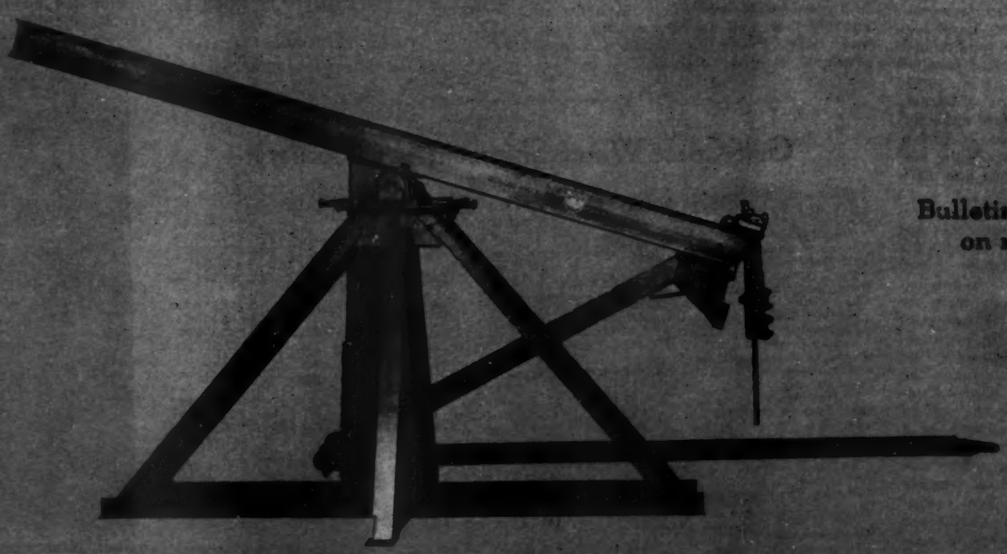
Fig. 7

NATIONAL JACKS

TYPES D-80, D-100 and D-130-S

National Type D Jacks are designed and constructed for long stroke pumping of deep wells. All steel, arc welded construction which gives excess strength and extreme rigidity; extra large, enclosed bearings; adjustable position; variable stroke; approximate straight line motion; sand and water-proof lubrication—all are combined to provide economical installation, efficient operation and long, dependable service.

THE
NATIONAL SUPPLY
COMPANY



Bulletin No. 534
on request.

Sidetracking Has Been Developed Into Practical Art on the Gulf Coast

By NEIL WILLIAMS
Gulf Coast Bureau, The Oil and Gas Journal

HOUSTON, Tex., Apr. 22.—Sidetracking is a practice very definitely associated with the Gulf Coast. Originated on the Gulf Coast, it has developed with the coast. Although now made use of extensively in other areas for various purposes it still finds its widest field of application in the land of its birth, where additional uses and service constantly are being opened for it. Fundamentally and characteristically it remains a Gulf Coast operation.

In its earlier adaptation, and even up until comparatively recent years, sidetracking was confined almost entirely to those jobs in which there was junk or other obstructions in the bottom of a hole. In fact, it was that type of work which brought it into being. In those days there was occasion for a great deal of working over of wells. Then, fishing of old screen and cleaning of holes was a more difficult undertaking than it is now, and frequently the junk could not be removed. As an alternative to the drilling of an entirely new hole to the sand, the whipstock was devised so that the old hole could be drilled out just above the junk, making necessary new hole only from that point.

Even with the introduction of the whipstock, the practice of sidetracking was looked upon for a long time only as an emergency operation. The tools until the last several years had no positive means for setting to prevent shifting of position during the subsequent milling operations, or even after the completion of a window in the pipe wall, and sidetracking jobs frequently were uncertain and often unsuccessful; consequently, operators were reluctant to resort to such procedure.

Has Become Normal

Within the last several years, however, there has been considerable improvement in whipstocking tools and development in the art of sidetracking. Also, numerous additional advantageous uses have been discovered for the procedure and knowledge of reactions and conditions involved has increased. Now, Gulf Coast operators have accepted the practice of sidetracking as a normal, rather than an emergency drilling and production operation, and sidetracking programs are being carried on with as little hesitancy and difficulty as any drilling job.

Among the development and improvements in whipstocks are self-contained locking mechanisms making it possible for such whipstocks to be set at any desired depth in the pipe, with any desired orientation and in such a manner they are held positively in the proper position relative to the pipe wall, and offer no interference to the proper action of the milling tool, or to the tools working through the window after its completion. These whipstocks are so designed that in the milling job the pipe wall will be pierced at a point between coupling, eliminating the hazard of cutting the string apart and the additional difficulty of a possible milling through a collar. Efficient operation of the milling tools are facilitated under all ordinary conditions by the newer whipstocks.

In earlier operations, whipstocks which were set had to be left in the hole. These tools now used are removable, and come out of the hole with the pipe after the new, or sidetracked hole has been started. Such whipstocks have a collar at the top through which lower end of the drill pipe is run before the bit is attached. The bit then is screwed on the drill pipe and as it is larger than the collar of the whipstock the latter cannot drop off the pipe while running in the hole and also comes out of the hole when the pipe is pulled. Pins, inserted through both the whipstock collar and the bit head hold the whipstock in the desired position and orientation for setting. When the whipstock is securely in the proper position, the full weight of the drill pipe is placed on the tool which shears the pins, freeing the drill pipe for drilling. In coming out of the hole, the collar of the whipstock hangs on the bit and the whipstock comes out of the hole with the pipe.

Progress in Metallurgy

Progress in metallurgy also has been a factor in the development of sidetracking, making available new and better materials for construction of the tools. Weight indicators and other improvements in surface equipment make it possible for an operator to exercise finer control over milling operations. Operators now are able to maintain the weight, speed and other factors involved, within the desired limits of the materials used, as determined by experience and research of the past several years.

Uses of the practice of sidetracking on the Gulf Coast are varied and extensive. Some of these follow.

When the screen or liner in a well becomes clogged or faulty and production is retarded as a consequence, it is common practice to mill out of the casing at some point above the production and drill a new hole tapping the formation. As the sand or other formation immediately surrounding the liner also becomes clogged to a certain extent, there is a considerable advantage in having an entirely new drill hole for setting screen and liner. From the production data available, it often is possible to improve on the penetration of the hole into the producing formation, and obtain a more satisfactory producing condition. This is in addition to the advantage of having difficult fishing jobs eliminated by not having to pull screen and liner and clean the old hole, or of having eliminated the necessity of abandoning an old hole when it is impossible to clean the bottom for a new setting.

There also are many instances of wells which have produced as long as possible from one horizon and which are to be deepened to lower sands. Whipstocking is commonly practiced in such cases in sidetracking the old hole above the higher formation. In some fields a number of different productive levels are drilled to from the original drill hole over a period of years. More recent discoveries of deeper production in many of the older fields have led to further development in the use of sidetracking an old well and drilling on down to the lower sand.

It often is a difficult and expensive operation to pack off bottom water in a producing formation. In the Gladewater area of the East Texas Field there is now considerable difficulty from water encroachment, and operators on these edge properties are coming to take some measures to eliminate this difficulty. Several of these wells have been sidetracked, and redrilled into the sand for a higher setting of the liner.

Since the development of apparatus and equipment for drilling straight holes and checking the results as the drilling proceeds is a comparatively recent development, there are a great many producing wells that are so crooked that they cause excessive strain and wear on the pumping equipment, with a corresponding increase in the lifting costs. A preliminary survey of the hole will often indicate a point at which the hole could be sidetracked and straightened, eliminating these difficulties with comparatively little expense and delay.

Casing Difficulties

Casing difficulties are almost too numerous to mention, with bad joints, leaks, faulty setting, and improper setting. Sidetracking is frequently resorted to for overcoming one or more of these difficulties with a minimum loss of hole, pipe, time, etc. Collapsed casing offers a condition encountered from time to time. When the pipe walls are distorted to an appreciable extent it becomes necessary to take some corrective measure. Reaming is seldom satisfactory, since the pipe wall is either weakened or cut through in one or more points, and in the event that the reamer or mill is reflected out of the casing at the point of collapse there is no means of controlling the angular displacement of the tools or the direction of the drill hole at this point. Whipstocking, however, at a point above the casing failure affords a positive means of overcoming the difficulty.

A condition constantly recurring in deep drilling and production is that of lost tools in the hole. Quite often, it happens these obstructions cannot be removed, and whipstocking must be resorted to, and a new hole drilled by as required. In many jobs of this nature, where there is a reasonable doubt as to the possibility or difficulty of removing the fish from the hole, it is more economical to proceed at once with the whipstocking operation, and avoid the delay and expense necessarily involved while fishing.

Directional drilling has assumed an important place in drilling methods, and its possibilities are practically unlimited. In practically every condition or type of oil bearing formation there is an application of this practice, either to render the production more accessible, or to improve the structural position of the drill hole. When it is required that the deviation of the drill hole have its origin within the casing, a casing whipstock may be set at the desired depth and in the desired direction, as determined by the survey, and the milling job completed at this point. From there, the drill hole may be controlled by means of the open hole whipstock and other devices.

Gulf Coast Water Shipments in February

Company and terminal—	Crude: Coastwise	Crude: Exports	Refined: Coastwise	Refined: Exports	Total
Atlantic Pipe Line Co.:					
Atreco	1,744,733.50	265,155.78	27,587.40	.....	2,037,476.68
Texas City	282,565.75	.....	2,832.33	.....	285,398.08
Harbor Island	377,753.52	.....	.....	.....	377,753.52
Gulf Refining Co.:					
Port Arthur	264,317.05	.....	1,971,944.74	.....	2,236,261.79
Humble Oil & Ref. Co.:					
Baytown	700,141.98	.....	2,084,779.06	277,442.18	3,062,363.22
Harbor Island	1,698,260.71	.....	.....	.....	1,698,260.71
Ingleside	33,326.99	.....	.....	.....	33,326.99
Texas City	441,572.55	.....	.....	.....	441,572.55
Magnolia Petroleum Co.:					
Beaumont	652,502.02	.....	1,926,951.80	.....	2,578,453.82
Pure Oil Co.:					
Smiths Bluff	403,430.00	.....	613,261.00	.....	1,016,691.00
Shell Petroleum Corp.:					
Houston	201,028.94	.....	1,074,194.64	71,533.27	1,346,756.85
Norco	.....	.....	311,640.13	.....	311,640.13
Standard Oil Co. (La.):					
Baton Rouge	481,947.00	.....	1,281,723.00	169,534.00	1,933,204.00
Sun Oil Co.:					
Sabine Pass and Sun...	1,702,786.00	.....	.....	.....	1,702,786.00
Texas Co.:					
Port Arthur	1,438,186.00	149,541.00	2,032,787.00	453,192.00	4,073,706.00
Miscellaneous:					
Houston	2,662,480.64	417,259.00	5,428,102.29	1,031,880.08	9,539,722.01
Total February	13,085,032.65	831,955.78	16,754,803.39	2,003,581.53	32,675,373.35
Total January	12,277,939.11	331,975.00	14,075,357.64	2,003,569.13	28,688,840.88
Difference	807,093.54	499,980.78	2,679,445.75	12.40	3,986,532.47

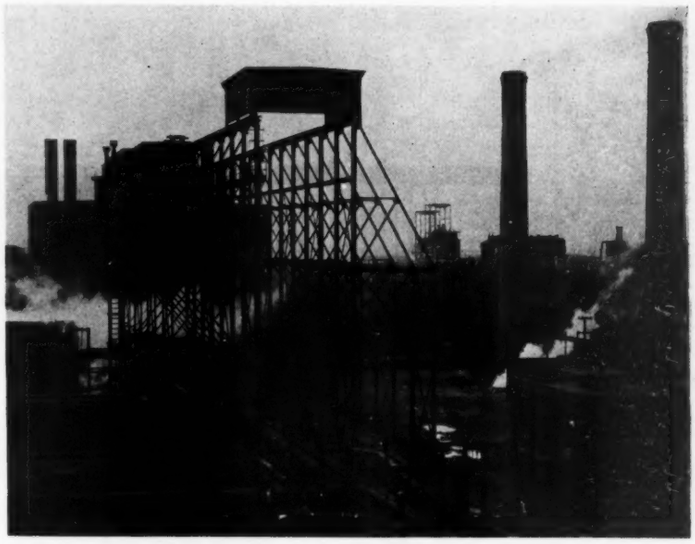
CO-OPERATIVE ADVERTISING

CHICAGO, Apr. 22.—Details of a co-operative oil trade advertising campaign for oil heating in metropolitan Chicago are expected to be worked out soon, following a meeting held last week, attended by representatives of various elements in the trade. Questions of the period to be covered, the amount of funds required and allocation to various companies will be considered by a committee to be appointed and to include membership from the major company group, the Chicago Burning Oil Distributors Association and the independent group not affiliated with either. Frank E. Spencer, president of the association, has been active in promoting the plan and creating sentiment for it.

Sam Osborne, (left), drilling superintendent J. E. Crosbie, Inc., and C. J. Hillman, Oil Center Tool Co. representative in the Fitts pool, Oklahoma

Complete Enlargement Program at Power Plant in Bayway, N. J. Refinery

By C. O. WILLSON



Forward view of central power plant at Bayway, N. J. refinery of Standard Oil Co. of New Jersey

The installation, since the first of the year, of a second 5,000-kva, 650-pound steam turbine at the Bayway, N. J., refinery of the Standard Oil Co. of New Jersey has completed an enlargement and improvement program at the main steam generating and power plant which has been under way over the past year. This main unit of the refinery now has a capacity of 25,000 kw and 500,000 pounds of 650-pound steam. By way of comparison this electric power capacity is approximately equal to the domestic requirements of 150,000 average homes.

As in the case of practically all the New Jersey Standard's refineries, there has been gradual expansion and changes in methods of operating the steam and power plant at the Bayway refinery. The original steam plant completed in 1908 consisted of a battery of coal fired H.R.T. boilers operated at 100 pounds pressure. Two 250-kwa generators driven by marine engines furnished the electric power. Since that time there have been many changes brought about by increased plant requirements, fluctuations in costs of fuels including the necessity of utilizing waste products and the constant improvements in steam generating and power plant equipment which have a direct connection to overall operating efficiency.

During this period the Bayway refinery has become one of the major manufacturing units of the company. It is operated in connection with plants located at Bayonne and Jersey City, the combined plants constituting the largest and most complete manufacturing operation of the petroleum industry. These plants which are located several miles apart are interconnected by pipe lines for the transportation of finished and unfinished products. These pipe line shipments coupled with the pumping of sea water accounts for a substantial part of the electric power requirements.

The main power plant with which this description is concerned, furnishes electric power and steam for a wide variety of uses at the Bayway refinery. The refinery has a rated crude oil capacity of 70,000 bbls. daily and most of the cracking for the New Jersey group is done at this plant. The rated capacity of the cracking facilities including rerun as well as fresh stocks is 175,000 bbls. daily. The refinery partially refines certain lubricating stocks which are finished at other plants. Many of the company's special products are made at Bayway and the original hydrogenation installation is operated there. Offices and laboratories including those of the Standard Oil Development Co. are located at the refinery. All these various operating divisions obtain electricity and steam from the refinery.

Steady Expansion

Records of the company show several important installations at the main steam and power plant since the main building still in use was built in 1921. In that year four 17,600 square feet water-tube boilers for 175-pound operating pressure were built with a 3,750-kva mixed-pressure condensing turbine and two 850-kva frequency changes. A 5,000 horsepower pumping station was built the same year. The boilers were fired with chain-grate stokers.

A second but smaller power station was built at another location in the refinery in 1926 including the first 5,000-kva turbine operated with 125-pound back pressure. This system of operating at high pressure utilizing exhaust steam from turbines for plant requirements proved satisfactory and in 1929 another 5,000-kva turbine was installed at the main plant.

The present program which is just now being completed might be said to have started in 1932. In that year one 300,000-pound per hour boiler operated at 650 pounds pressure was installed and in the power end a 9,375-kva turbine exhausting at 110 to 175-pound pressure was added. This operation proved highly efficient and after a year's operation further changes and additions were decided upon.

Principal Changes

These changes briefly summarized have been as follows:

Dismantling of one of the 1,760 horsepower 175-pound boilers. The space provided was used in the installation of a 300,000-pound per hour capacity boiler operating at 650 pounds. This is a companion unit to the one installed in 1932 with a slightly larger capacity and incorporating the latest developments in design.

The chain grate stokers of three remaining 1,760 horsepower boilers have been removed and the furnaces rebuilt and burners changed for gas and oil firing.

Changes have been made to provide for utilization of pulverized coal as an alternate fuel for the new boiler. A colloidal fuel preparation plant to enable heavy refinery wastes to be fired through steam atomizing burners has also been installed. This waste fuel formerly was mixed with anthracite coal and burned on the grates of the 1,760 horsepower boilers.

All 25-cycle equipment has been replaced with 60-cycle and the second 650-pound steam turbine has been installed.

The main features of the steam generating plant as now operated consist of three 175-pound boilers, burning oil and gas fuels; two continuous capacity boilers each with a maximum 300,000-pound capacity operated at 650-pound pressure; one 9,375-kva, one 5,000-kva and one 3,750-kva generators.

These high back-pressure turbines furnish the electric power requirements up to 25,000 kw with exhaust steam at 120 to 175 pounds pressure for plant use with the surplus going to the condensers. The 3,750-kva turbine generator is operated from the 120-175-pound steam lines with the exhaust going to condensers.

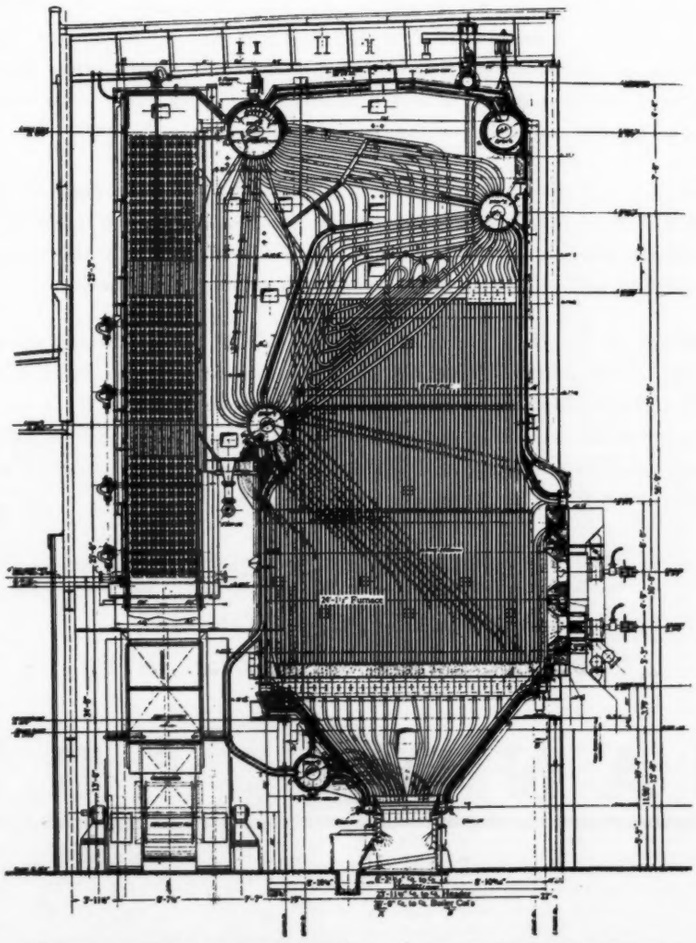


Diagram of complete steam generating unit recently installed at Bayway, N. J. refinery of Standard Oil Co. of New Jersey

New Boiler

The operating features of the newest boiler, the principal mechanical features of which are illustrated in the accompanying diagram, are:

Heating surfaces:
- Boiler—15,000 square feet.
- Water walls—7,500 square feet.
- Economizer—14,100 square feet.

Efficiency—83 per cent at 250,000 pounds per hour.
Working pressure—746 pounds.
Steam temperature—740° F.
Furnace volume—17,000 cubic feet.

The boiler has five drums. The lowest drum is to assure adequate water supply to the water-cooled hopper bottom and the wall tubes. The latter are separated by only 1 inch. It is anticipated that the large furnace volume and the 7,500 square feet of water wall surface will assure low maintenance costs. The main steam drum is 2½ inches thick consisting of a seamless forging of 75,000-pound tensile steel. The remaining steel drums are fusion welded. The superheater which consists of thirty-six 2½-inch units, 157 feet long, occupies 3,700 square feet of space.

The construction details of the economizer which has 14,100 square feet of

(Continued on Page 48)

"OUR FIRE LOSSES HAVE BEEN PRACTICALLY ELIMINATED"

"In the past two years our fire losses have been negligible. We equipped all of our storage tanks with S. & J. Gas Tight Automatic Gauges, Flame Arrestors, Explosion Vents and other safety and conservation devices. We have anticipated and provided against practically every type of accident or natural cause that might start a tank fire."

Thus one tank farm superintendent tells another, and the good name of S. & J. Safety and Conservation devices is enhanced. Their wide use on petroleum storage tanks in all parts of the world is largely the result of satisfactory performance which one oil man relates to another.

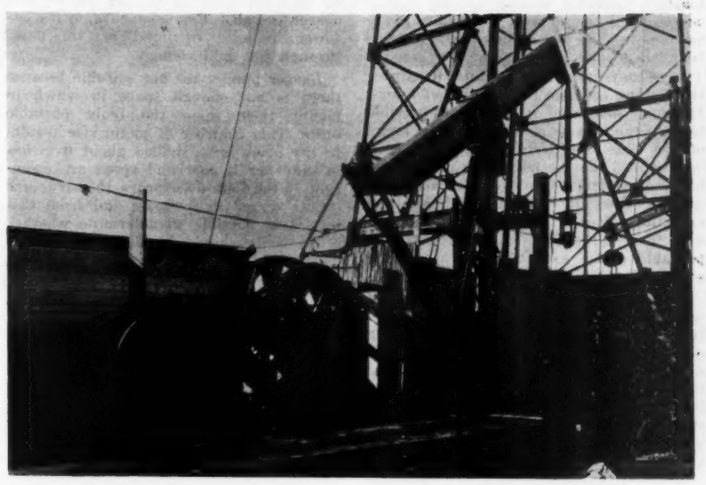
Today, S. & J. offers the most complete line of petroleum storage tank fittings on the market. They are shown in our new catalog in blue print form and described in language spoken by engineers. Write for a copy of this new catalog today—it contains all the technical data you will want on construction details, material specifications, dimensions, weights and sizes. Your catalog file is not complete without a copy of this book.

SHAND & JURS CO.
BERKELEY, CALIFORNIA
295 Madison Avenue, New York, N. Y.

SHAND JURS

Portable Drilling Units Aid in Testing Wildcat Acreage in Kansas Fields

By L. G. E. BIGNELL
Petroleum Engineering Editor



Standard tool outfit rigged up on Kansas well ready to drill in

When an oil company has acquired drilling rights upon a block of land after proper check of geophysical features and title to the property, it is required to pay yearly rental or drill. The ordinary procedure is to hold the lease and pay rental until the "play" trends in that direction. Under this system many millions of dollars have been paid for bonus and rental upon probable oil land and now that many companies are in need of reserves of oil underground there is a tendency to make some kind of test to determine whether the property is productive of oil or gas.

The owner of the oil lease can proceed to do additional geophysical work and if surface conditions are not such as to permit of satisfactory work being done to determine the position of the buried structure, if any, it may be advisable to drill a number of relatively shallow core holes. But any favorable surface work leads ultimately to the necessity for drilling a well to test the underground formations for oil or gas.

Because of this ultimate necessity of drilling if it is decided that the lease is worth keeping, the oil companies have been interested in finding means of making this type of test as cheaply as possible.

Tests down to 3,500 or 4,000 feet have been made in the past with portable cable tool outfits. Many inside locations have been drilled with such outfits and before the popularizing of the rotary it was considered essential that wildcats be drilled with cable tools, or that wells drilled to the top of the formation with rotary be drilled in with cable tools.

It is not uncommon now to make wildcat tests with rotary although some companies still do this kind of work with cable tools, especially in certain sections.

With the development of equipment for deep drilling the average outfit now owned by the companies and drilling contractors is made up of very heavy pieces of machinery. The boiler equipment for three 125-horsepower boilers will weigh approximately 60 tons and make four truckloads and the drilling machinery will add about 56 tons, making a total of nearly 120 tons of material to be moved when miscellaneous items are added that are needed for making concrete, digging cellars and pits and doing other work in rigging up.

Modern Methods

The oil companies have been restricted in money to spend for wildcatting because their revenue has been curtailed and until the past 18 months most of the drilling done was on inside locations in known oil fields.

As the present situation developed and oil in reserve was needed and the owners of oil leases were forced to make tests, or sacrifice the money they had already spent, the drilling superintendents and executives cast about to find drilling contractors who could drill test wells at reasonably low costs.

With the modern heavy duty rotary outfit representing an investment of more than $50,000 and costing not less than 20 cents per ton-mile to move and requiring a week to rig up if everything went right it was necessary that the drilling contractors receive $8.50 or more per foot for such tests. With these wildcats averaging in excess of 4,000 feet in depth the minimum drilling cost was around $35,000 without any casing or other added costs.

There were other problems to be considered in using the standard rotary outfit for wildcat tests. Water that was suitable for boiler feed is not always available at reasonable cost, and fuel for the boilers presents a problem sometimes costly in its solving.

There are advantages in the use of the heavy outfits where conditions are right and limits to the portable units that have been developed for wildcatting so that both types of equipment have definite places within the industry and these spheres of use do not overlap if each outfit is properly used.

There are two types of portable outfits in general use in the Mid-Continent area. They are the skid mounted type and the outfit that is permanently mounted upon a truck. And again they have definite places in the scheme of things and have their advantages and disadvantages.

Both types of units are capable of drilling 6-inch diameter holes to about 4,000 feet without being overloaded in any respect. These units will drill 11-inch holes if necessary and it is not in the ability to rotate the bit that the limiting feature occurs but rather in the capacity of the mud pumps that can be considered as portable.

General Specifications

Portable units are usually powered with internal combustion engines that will operate upon gasoline or natural gas and develop about 125 horsepower at maximum speed of 1,800 r.p.m. Two such engines are usually used and they are so hooked up they can be operated independently or together as the work requires. To drive the slush pump and rotate the turntable one of these engines has ample power. The turntable will not require more than 45 horsepower under most adverse conditions and during most of the drilling operation does not consume much more than half of that amount of power.

With the truck mounted outfit the engine under the hood is of the same size and type as the independent engine that is mounted upon the truck bed. By a system of power transmission, by means of which the engine power is delivered to pump, drawworks or turntable, the unit that is truck mounted is able to utilize the power from the engine used to drive the truck for most of the work and the independent motor is started up when added power is needed, particularly for handling drill pipe into or out of the hole.

The work done by one of these internal combustion type engines is indicated by the speedometer reading recently made on one unit that had been in use about eight months. The speedometer was connected to the high-speed transmission and recorded 94,000 miles of travel. That is, the motor had been operated long enough to have traveled 94,000 miles had the truck been on the road all of the time. It was estimated the auxiliary motor had been used about an equal amount, for it is this operator's practice to divide the house of duty for the power plant about equally between the two motors.

When this truck was driven into the garage for overhauling nothing was wrong with either motor and the mechanic stated after he had gone over each unit very thoroughly they could have run 25,000 to 30,000 miles more than they had without having caused any damage to either unit.

On the portable unit, which weighs about 42,000 pounds or 21 tons, there is usually assembled an independent motor, rotary drawworks, mud pump, electric generator for lighting purposes, and heavy duty gear transmission box.

Skid Type Mounting

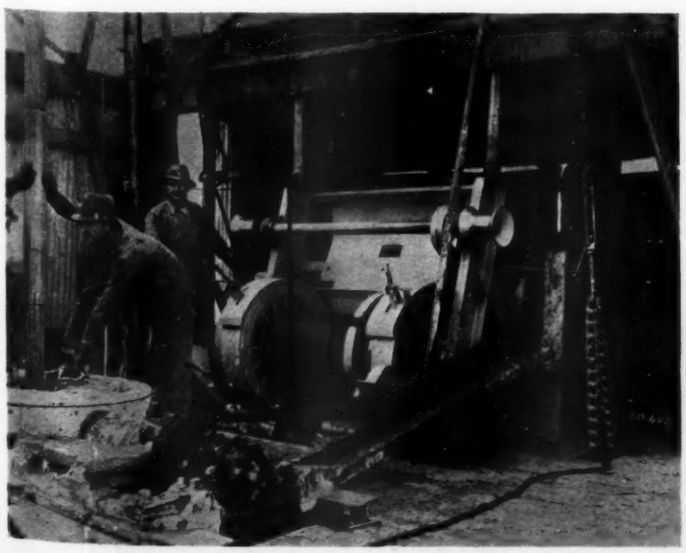
The same units are used when the skid type mounting is followed but they are taken to the location on a truck and then mounted in the derrick much as regular equipment of this type would be mounted. In either case a steel drilling derrick is erected at the well location. The truck mounted portable unit is backed into position and the drawworks beam in the derrick is used to hold down the "A" frame supporting the drawworks and cat heads. The truck is usually jacked up off the wheels and so blocked that vibration when in operation is reduced to a minimum.

With the truck unit the working floor is built up to the level of the truck body and surrounds it. Suction line to the slush pit from the pumps extends under the floor. Levers for the control of the various parts of the drilling unit are located at the corner of the truck body and when the truck is backed into position these levers are conveniently located with relation to the well.

The portable rig fronts for completing well with cable tools can properly be classified with the skid type drilling outfits. Where holes have been completed to the top of the formation to be tested, using rotary outfit, it is general practice to drill in with cable tools. For this purpose several types of portable rig fronts are manufactured and they can be moved up to the derrick easily and the well finished by this method.

The skid type outfits for rotary usually sells for less money than the truck mounted units. Its power transmission is close coupled and all parts are readily accessible to the operator after the rig is in place. Furthermore no truck is tied up during the drilling operations, for this equipment is moved to and away from the rig upon regularly equipped trucks which are released for other duties as soon as the moving operations are completed.

With the truck mounted type no pre-



Typical portable rotary outfit on Kansas well

liminary leveling around drilling rig is necessary if the country is comparatively smooth and the usual preparations have been made before erecting the derrick. This permits quick movement and reduces the rigging up time to a matter of hours. In some instances it has been possible to have the hole started within four hours of the time the portable unit has been backed into the derrick. Much of the four hours was devoted to work of stringing up the lines in the crown block and traveling block. The same type crown and traveling blocks are used with the portable outfit as would be used with any light rig.

With the slush pits ready and filled with water this ability to start up quickly will save money for both the drilling contractor and the company having the well drilled. In four hours elapsed time the members of the drilling crew have little opportunity to drive into town for extra parts which they might do if they were on a job that did not require quick action.

It is estimated that moving a portable rig 100 miles and rigging up will permit the saving of from $250 to $400 per move. It is common practice to drill one well a month to 4,000 feet depth with the portable outfit, therefore the saving to the drilling contractor in the course of a year is an important item. It has been estimated the average 4,000-foot test will cost about $27,000 to $30,000.

One principle item of saving is in weight of material moved. A truck mounted portable unit will weigh complete about 42,000 pounds. The portable outfits can easily be rigged up in one day which permits a saving in expediture both in starting and completing the hole.

Most of the portable outfits are powered with internal combustion engines that use gasoline for fuel. About 200 gallons of gasoline is used per day when drilling is in progress. Diesel engines have been considered for powering such units but to date none have actually been used. Distillate for the Diesel and gasoline cost approximately the same, but the distillate is not always easily available.

Water for drilling is a big item. With the portable units it is possible to get along with a small quantity of make-up water for the mud pits and a little water for cooling the engine, probably amounting to not more than 50 bbls. per day all together.

Small Diameter Holes

The usual portable unit is furnished with either 5x12-inch or 7½x10-inch slush pumps. Either of these pumps will build up about 2,600 pounds per square inch pressure but they are both limited in capacity. This limit in capacity has its effect upon velocity of the mud fluid in the hole and this in turn limits the carrying capacity of the mud stream. Because cuttings cannot be delivered to the slush pit as rapidly as the large size bit will cut them smaller holes must be drilled.

Holes 11 inches in diameter can be drilled. Many 8⅝-inch holes have been drilled in which 7-inch casing has been set, but for the best work for the portable units the 6-inch diameter hole with 5⅛-inch casing permits more rapid drilling.

With these pumps there has been some tendency for bits to ball up with gumbo or clay. This trouble was remedied by the bit manufacturers by placing the jet hole nearer the bits. This compensated for the lower velocity of mud stream down through the drill stem.

Larger pumps are not suitable because there is not enough space in which to mount them upon the truly portable units. This limiting of pump size results in the holes being drilled about 6 inches in diameter if cost and speed are essential. If the hole does prove the structure it has served its purpose and from this test it is possible to determine whether other wells should be drilled and then move in larger units for that work. The size of the hole drilled by the portable outfit is therefore not so essential.

In operating portable outfits there is much to be said about the personnel of the crew. About 90 per cent of the real success with such outfits depends upon selecting men who will give every consideration to the unit they are running and not try to do things with it that they might well attempt and get away with using the standard equipment.

Every portable rig is built of the best material. Steel suitable for every duty is carefully selected and the type of clutches and gears are best for their particular duty. But there is a limit to both size and weight of parts and it is therefore highly essential that the operators give consideration to these unalterable conditions and treat the outfits accordingly.

Care in Operation

Care in rigging up to see chains are cleaned before they are put in place materially reduces wear and shutdowns. Oiling systems to lubricate the chains and other parts have been worked out and in some instances auxiliary means have been devised by the men on the rig.

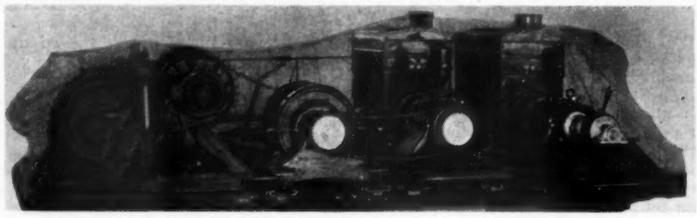
Clutches must be shifted with consideration given to the type engines being used and the work to be performed in the rig. Care must be exercised to minimize shock loads. In one portable unit there are six friction clutches used with only jaw clutches for the cat-head shaft driving sprocket, the power take-off clutch from the truck motor and the generator clutch and no jaw clutch need be engaged under load.

Clutch troubles might result if the drill pipe was frozen in the hole and the motors were speeded up to develop maximum power and the clutch suddenly engaged to connect the hoist drum. Under such a condition as the pipe cannot be moved there is a shock load transmitted to the moving parts and the weakest will break.

If the driving shaft from the motor has a diameter of 2 inches and is 2 feet long it will develop a shearing strength of about 94,000 pounds per square inch. The torque required to break such a shaft would be about 147,000 inch pounds. The angle of deformation, or the angle through which one end of the shaft may be rotated with respect to the other end before rupture will occur is approximately 11 degrees.

With the motor rotating at 900 r.p.m. the torque required to stop the motor due to the inertia of the moving parts alone within the rotative angle of 11 degrees is about 398,000 inch pounds, or more than twice the torque required to break the shaft.

If the strength of the shaft is not to be exceeded, the motor must be stopped within an angle of not less than 29 degrees and if the friction type clutch is used this can be accomplished because it is probable the engine will make several complete revolutions before the clutch is completely engaged, even if it is engaged suddenly.



Internal combustion type engine driven portable rotary drilling outfit used in Kansas exploratory work

Another feature in clutch selection for units of this kind is not to secure clutches that will transmit too much power and break lines or other equipment in the derrick. For instance if the final drive clutch is designed for 24,000 pounds direct pull and the breaking strength of a 1-inch wire line used in the rig is 30,000 pounds this type clutch will prevent the possibility of pulling a line of this size in two and will also avoid excessive shock to the driving mechanism when a load is applied.

Points such as these emphasize the need for selecting careful operators. The engineers and manufacturers do their part but if the men in the rig will attempt the impossible, something breaks, with delays and added costs resulting.

Out of 30 good drillers one drilling company selected five men who were suited for portable rig duty. The older men are not always the best for this kind of work, nor are young men especially qualified. The type man best suited for this kind of work is one who is inherently careful and has mechanical instinct. This quality may be acquired by long training but usually it is a characteristic of the individual who cannot explain how he acquired the abliity, but nevertheless it is very apparent to all who observe him handle machinery of any kind, whether it be his private car or any other piece of moving machinery.

These portable units are rapidly making for themselves a place in the industry. It is believed that in time they will be used for drilling inside locations, especially in prorated pools where large holes and heavy strings of tubing are not always justified because of the age of the field at the time the later wells are completed.

As the operating companies obtain increase in income and are therefore prepared to encourage the drilling contractors and manufacturers to experiment more with portable units it is believed much improvement over the present type outfits will result. The units now in use are giving good performance when properly used and by additional consideration being given to development of details they may be built for drilling of other than small diameter wildcat wells, their principal application up to this time.

Drilling Conditions in Kansas Fields

Most fields of west central Kansas have two producing horizons; the shallower one is the chat which is found about 2,900 feet deep. This produces a little oil and considerable gas. The deeper one is the oil producing zone known as the "Viola" lime which is found around 3,450 feet.

Many operators deepen their Chat wells to the Viola lime in order to conserve their gas and get a larger oil production. Whether standard tools or rotary equipment were used to drill these additional 400 or 500 feet, large quantities of water and mud were lost into the Chat. In many cases the loss was so great as to kill the production from adjoining wells. In some cases, water had to be added to the hole at the rate of 100 bbls. per hour in order to keep sufficient hydrostatic pressure against the gas in the Chat to prevent blowing out.

This situation became so serious that the Public Service Commission of the State of Kansas wrote into its drilling requirements an order, docket No. 13,504, specifying that the drilling mud which was to be used to mud off the Chat horizon should weigh not less than 10 pounds per gallon. This was stipulated, knowing that a thin mud or water would penetrate almost indefinitely into the Chat, whereas a thick mud would have some chance of actually sheathing up this porous formation. However, experience had shown the operators that an increase in weight alone of the drilling mud used for this purpose would not accomplish the desired results. A supplement to the foregoing order of the Public Service Commission was provided by the operators committee and suggested that it be substituted for the specification of weight alone for the drilling mud. The supplement is as follows:

"1. In rotary drilling, the mud used prior to encountering the chat formation and continuing until the pipe is set and cemented through the chat should be of not more than 10 pounds in weight and not less than 1½ centipoises in viscosity.

"2. A—In cable tool drilling, a solution of fluid shall be used of sufficient amount in hole to equalize anticipated bottom hole pressures prior to penetrating the chat formation and continuing until the pipe is mudded or cemented through the chat; said fluid to have a viscosity of not less than 5 centipoises.

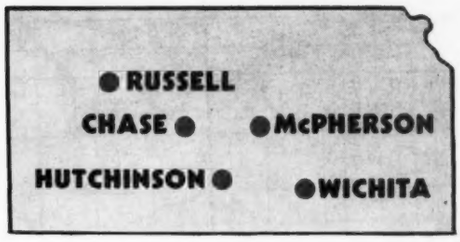
"2. B—After running pipe through chat formation, it shall be optional with the operator to cement with sufficient cement to cover the chat formation or mud said chat formation with a fluid not to exceed 10 pounds in weight with a viscosity of not less than 15 centipoises."

The two specifications of weight and viscosity can be met in the same drilling

(Continued on Page 58)

Robbins pool, south of Wichita, Kansas

BRIDGEPORT SUPPLY SERVICE IN KANSAS



SPECIAL ITEMS

(Offered subject to prior sale)

"UNITIZED" DRAW WORKS

8-in. Johnson, practically new, Model A, "Unitized" in our shops. Sturdy, compact and fully enclosed unit. Built of heavy H-beams, securely welded throughout. Foot clutch operated. Lubricated from outside housing. Double cat-head. All bearings renewed. 95% new, but priced as used equipment. A Bargain. At Wichita, but can deliver anywhere.

TRACTOR AND WINCH

Rebuilt 10-20 McCormick-Deering Tractor equipped with Davis Miller Winch. Suitable for Rod, Tubing and General Lease Work. An $1800 outfit priced now at $750 f.o.b. Wichita.

LEASE BOILERS

(1) 45-h.p. 125# W.P., "F & T" with stack. Overhauled — fine condition — flues cleaned, rolled and retipped.

(1) 25-h.p. "Oilwell" with stack. Good serviceable boiler at very low price.

DRILLING ENGINE

Overhauled 12x12 Acme Drilling Engine with outboard bearing and balance wheels and balance rims. First class engine at favorable price. At Chase.

SPIDER AND SLIPS

20-inch spider with rings and slips down to 5 3/16 inch. As serviceable as a brand new outfit. Several hundred dollars saving in price. Chase Store.

CABLE TOOLS

Get our prices on new and used cable tools of all kinds. We have everything you need at prices you can afford to pay.

Highway 81 North Wichita

One of the most modern oil field equipment manufacturing plants in the Middle West, linked by our own rapid and efficient trucking system with our branch stores throughout the state, brings Bridgeport's complete and distinctly individualized supply service to the derrick floor of every operator in Kansas.

When you develope properties in Kansas you'll find it pays to "call the Bridgeport"

Telephone Day or Night.
"Station to Station"

BRIDGEPORT MACHINE COMPANY
MANUFACTURERS DISTRIBUTORS
OIL DRILLING-FISHING AND PRODUCTION EQUIPMENT
GENERAL OFFICE AND WORKS: WICHITA, KANSAS

NATIONAL TUBE PRODUCTS
Casing—Line Pipe—Tubing—Drill Pipe

AMERICAN WIRE LINES
Rotary and Cable

AQUAGEL and BAR-OID DRILLING MUDS
25 Convenient Stocks

BRIDGEPORT DRILL COLLARS
All Commonly Used Sizes in Stock

JENSEN PUMPING UNITS and JACKS
Engineering Service Gratis

EXPERT REPAIR DEPARTMENT
A Factory Job on All Work

BRIDGEPORT RENTAL TOOL SERVICE
Oldest, Largest and Most Complete in the Industry

SWAN Patented UNDERREAMERS
Sales, Rental and Expert Repair Service

BRIDGEPORT CABLE TOOLS
Complete Line for Sale or Rental

LINK-BELT ROTARY CHAIN
All Oil Country Types Carried in Stock

BRIDGEPORT PUMPING HANGERS
A Type and Price for Every Service

HUGHES TOOL COMPANY PRODUCTS
Rock Bits, Core Bits, Tool Joints and Valves

BRIDGEPORT ROTARY TOOLS
Drill Collars, Rotary Reamers, Overshots, Drill Pipe Pinats, Etc.

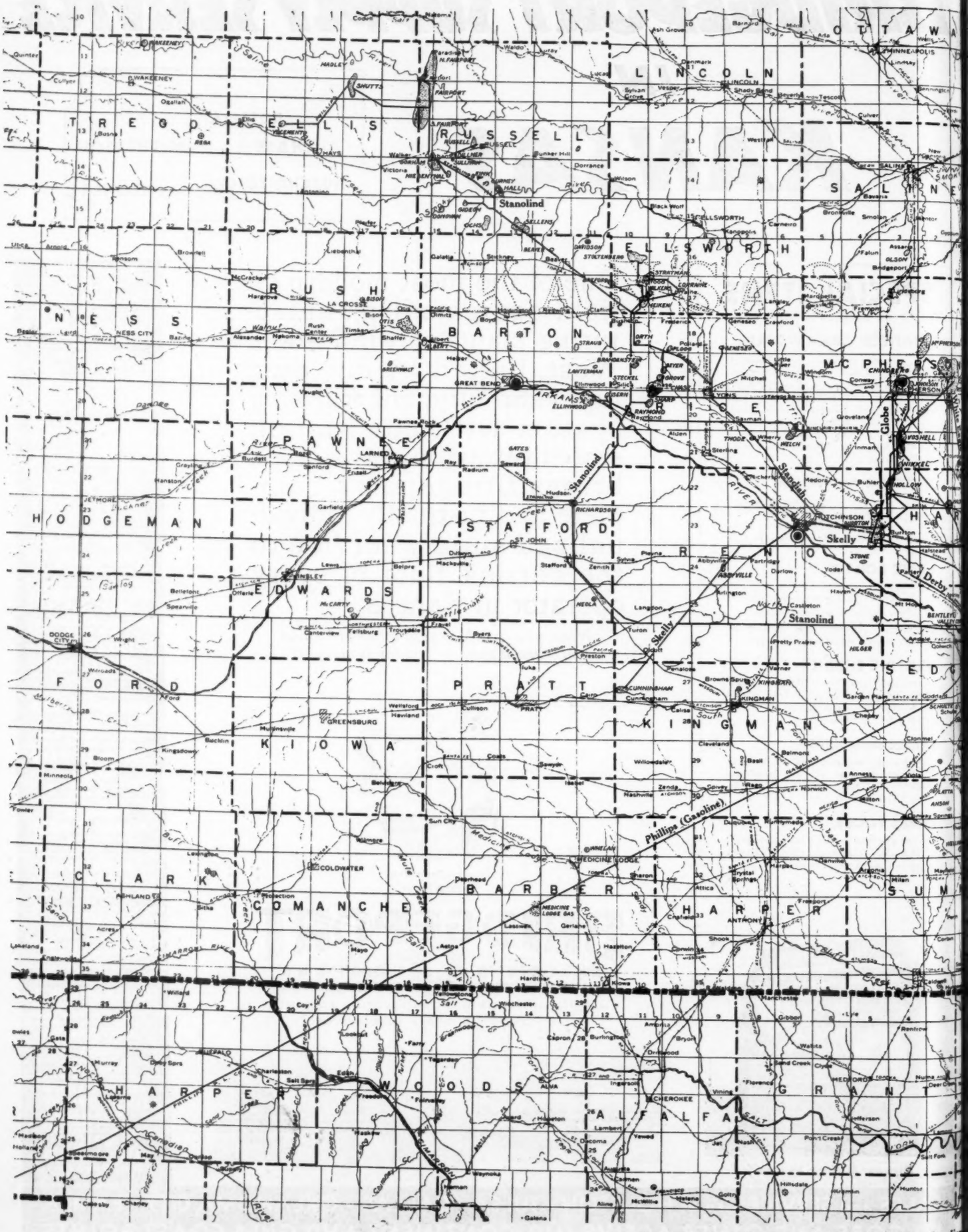
REED ROLLER BIT COMPANY PRODUCTS
Rock Bits, Full Hole Tool Joints and Core Bits

JONES SUCKER RODS
Types for Each Particular Field Carried in Stock

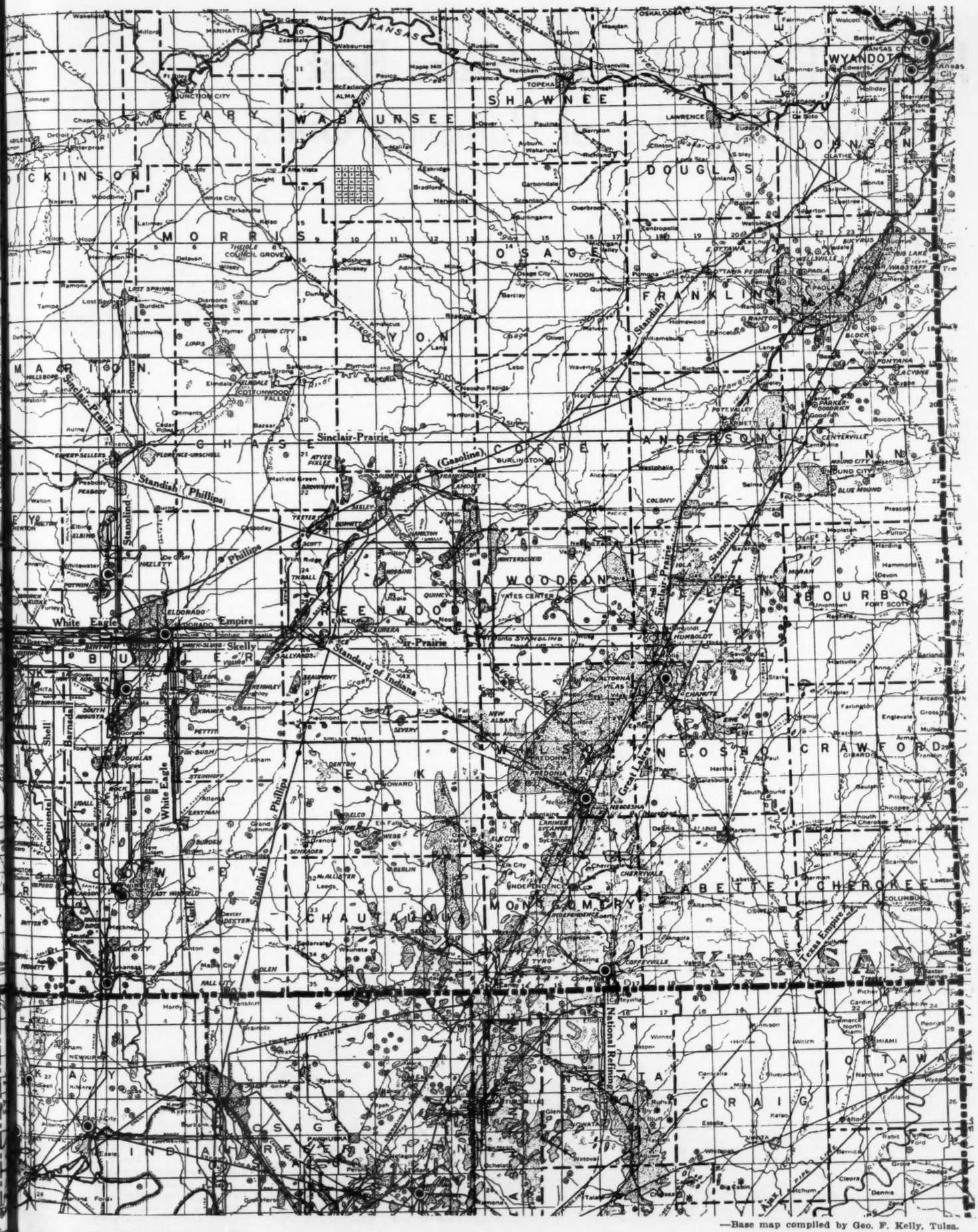
ALLIS-CHALMERS ELEC. EQUIPMENT
Drilling and Pumping Installations Of All Kinds

WALL MANILA CORDAGE
Cat Lines, Bull Ropes, Plain Laid Rope

SALES and SERVICE also at HOUSTON • TULSA • DALLAS • OKLAHOMA CITY • PAMPA
KILGORE AND OTHER ACTIVE MID-CONTINENT AND GULF COAST POINTS



Map of Kansas showing principal oil fields, pipe li



—Base map compiled by Geo. F. Kelly, Tulsa.

neries. Circle with Black Center indicates Refinery Sites

Kansas Production Problems Best Solved by Use of Pumping Units

Well in Russell field, Russell county, Kansas producing on the beam

There are approximately 19,565 wells in Kansas as of April 1 of which about 500 are producing by natural flow and the balance, of about 19,000 wells that are produced by some mechanical means. In the eastern part of the State there are approximately 11,342 wells classed as "E. Kansas Shallow" and they are all of the stripper class producing less than 5 bbls. each per day. Of the 8,700 other pumping wells in the other fields of the State many different mechanical methods are used.

The small stripper wells are for the most part produced by jacks operated from central powers. These powers are equipped with gas engines in most instances but some units are electric motor driven. There are many wells of this small capacity class pumped by beam with back side units that pump other nearby wells.

There was one field in Kansas, the Churchill-Oxford Pools along the Sumner-Cowley County line that was produced by gas lift. Over 4,000 horsepower in electric motors was connected to compressors during 1927 but operating conditions forced the change to beam pumping about 18 months later. Formation conditions in Kansas pools do not lend themselves to gas-lift method of producing wells for a long time. Low formation pressures and many lime reservoirs with hydrogen sulphide and sulphur oil that induce rapid corrosion have much to do with the condition that does not favor gas lift.

Of the 8,700 wells located in fields other than the eastern Kansas shallow area it is probable that the majority are pumped by beam because until quite recently most of the drilling in this State was done with cable tools and the derrick and front left over the hole for producing the well. The majority of the wells are not very deep and while most of them make water the pumping duty is not severe. Gas engines are used to power most of these beam pumping rigs. Many units are powered with electric motors.

Beam Pumping

With the older rigs, wooden derrick and fronts were common. This form of unit gives much trouble by drying out and the sampson post and jack posts getting out of alignment, increasing power consumption. Where electric motor was used a load check was possible on several wells before tearing out of the old equipment and installing steel fronts on concrete foundations using the same motor for each unit. With the steel front it was found that the reduction in power was about 40 per cent.

The present tendency is to install steel fronts on concrete foundations with roller bearings. With the geared, chain or "V" belt driven unit high efficiency may be secured. These units are designed to pump the well only and for servicing pulling units mounted upon tractor or truck are used. This is economical because the power unit can be selected for the pumping duty for which it may be used about 98 per cent of the time. The portable pulling outfits can be used to service several wells and can therefore be in use most of the time.

There are many types of pumping units on the market and in selecting one for a well it is possible to secure an outfit that will give high efficiency. The well's characteristics are usually known and the maximum size power unit can be installed so that potential may be taken as needed. With proration in effect this is quite essential. This condition requires a larger electric motor than needed for the pumping duty alone be used. When the potential test is made the counterbalance, position of the crank pin and increase in motor power can be made quickly so the well produces its maximum quantity of oil.

With the beam pumping unit it is not so simple ,to change over for potential tests but as most of these units are powered with gas engines there is usually an abundance of power available and the test can be satisfactorily made.

To meet the need of taking potential tests, as well as higher loads due to increase in water accompanying the oil, a triple rated constant speed motor is now available. The size motor meeting most conditions is the 10/20/30-horsepower, 1,200 r.p.m. unit. Switches are provided and the motor can be quickly changed from one rating to another, keeping it operating at an average efficiency of about 90 per cent for all conditions. To operate the well continuously while making its allowable may require only 10 horsepower but when pumping is speeded up and the stroke lengthened to take potential the power requirements may be as high as the maximum rating of the mototr and still have practically the same efficiency and power factor as under low load conditions.

For pumping wells many multicylinder internal combustion type motors are now available. These units are much the same as automobile engines, and some wells are powered with old automobile motors. They are usually lower in first cost than heavier duty units, but where the wells are not required to pump much of the time to make their allowable or to secure all of the oil available they give good satisfaction.

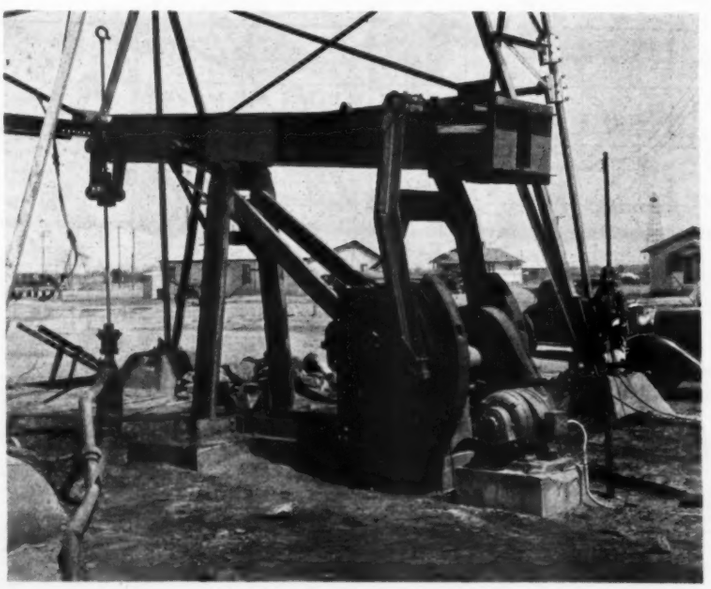
Weather Proof Motors

Most electric motors used on pumping units are weather proof. This eliminates the need of engine house and reduces the capital investment and taxes proportionately.

The triple rating on the 10/20/30-hosepower motors or motors of like character, is obtained by taking a standard delta wound motor of the maximum rating and bringing out the proper winding connections to switches, to secure a low and intermediate rating by grouping the windings in star and combination star-delta, respectively. Three different voltages are applied to the windings, the horsepower varying as the square of the voltage, that is, if the voltage is reduced to one-half the horsepower is reduced to one-fourth. Since there is no change in the number of poles by this change in winding connections the motor will operate at the same speed at all ratings.

To obtain the varying pumping speeds sheaves are provided to suit the motor shaft. These changes in pumping speeds are not frequently required so there is not much inconvenience experienced.

The gearmotor is now being used for pumping units and while not new to other industries it has only been applied to this type of duty recently but it is performing efficiently. The combination consists of a standard motor with the pulley end removed and the gear attached directly to the motor frame, the complete unit being mounted on slide rails. By this method a 1,900 r.p.m. motor, shaft speeds of from 90 to 110 r.p.m. are readily obtainable. By using the proper size sprockets to the gearmotor shaft and the rig crankshaft, a standard rig can be transformed into an efficient chain driven pumping unit at low cost.



Typical electric motor driven pumping unit such as used in many Kansas oil fields

Counterbalancing

Proper counterbalancing of all type of pumping wells is quite essential. This may be best secured by a system of checking the balance on each well at least once a month. Where the electric motor is used to power the unit this can be done by using an indicating ammeter. The swing of the ammeter hand should be the same when the rods are being lifted as when the weight is being lifted for minimum power consumption. A split core, portable type ammeter may be used and by this means a large number of wells may be checked with one instrument. To install the ammeter in the circuit the core is clamped around one of the motor leads without shutting the well down.

Keeping a record of these periodic tests will serve to check individual well production where several wells are pumping into one tank battery. The variation is amperes, well pumping speed and stroke will indicate the relative quantity of fluid lifted, and where water is produced with the oil this increase may mean more water is being made by the well. Variations in amperes may also indicate worn parts, low fluid level and other changes about the rig.

A very appreciable saving in power may be secured at many installations by reversing the usual crank motion. Most wells pump with the crank moving in clockwise direction. By making the change in motion the angle between pitman and walking beam is changed at the moment the load is picked up. When the pitman is longer than usual the power required will usually be less with the reverse motion. By checking with ammeter the results of the change can be determined. As much as 10 per cent saving in power has been recorded on some Kansas wells.

Electric power for well pumping is usually purchased from utility companies serving the various fields in Kansas but at least one lease is operated by electric power generated by a power station on the property. There are many advantages in applying this method where all characteristics of the wells are known and the power requirements can be carefully estimated in advance of installation. When part time operation is necessary on a group of wells because of proration allowables a system of staggering the operating hours can be planned without increase in attendants. The starting and stopping of the pumping opera-

Again! CLARK LEADS THE TREND

With its new "Bobcat" ENGINE

CLARK has repeatedly pioneered improvements in engines and compressors for the Oil Industry. Now the new CLARK "BOBCAT" Vertical Pumping Engine again pioneers a trend, because of the new efficiency and new economy it introduces.

Approximately $700 is saved on installation cost, by the "Bobcat." The diagram indicates how this is done. Vertical design and short belt save approximately 50% in floor space, 55% in foundation costs, 40% in building costs. One idler is eliminated, as engine is mounted on slide rails. There is reduction in belt cost and upkeep.

Engine is 2-cycle, 40 H. P., convertible, full Diesel or gas. Highly important, it is designed to operate at moderate speed, insuring long life. It is ideal for chain or gear driven pumping units.

Thoroughly proven in the field, the "Bobcat" is now meeting with a wide demand. For full information mail coupon or phone our nearest office.

Other Features Pioneered by CLARK

1919
Gas and Gasoline Drilling Engines

1920
Direct Gas Engine Driven Compressor

1925
Fuel Injection Valve for 2-Cycle Engine

1928
Double Acting 2-Cycle Engine Driven Compressor

1930
Inverted Power Cylinders

1930
Balanced Opposed Electric Driven Unit

CLARK BROS. COMPANY
OLEAN, NEW YORK, U. S. A.
Export Office: 30 Rockefeller Place, New York. Midcontinent Sales Offices and Warehouses: Tulsa, Oklahoma, and Tyler, Texas. West Coast Office: Smith-Booth-Usher, 2001 Santa Fe Ave., Los Angeles, Cal. Foreign Offices: 72 Turnmill St., E. C. 1, London, England, and 4 Str. Central Poestas, Bucharest, Roumania.

CLARK

tions can be performed automatically by installing a time clock relay on each motor and setting the clock to start or stop the well at any time desired. This arrangement is not expensive to install and it may also be applied to wells that are electric motor powered and secure their electricity from utility company power lines.

Burning out of motors due to overloading may be prevented by using thermal over-load relays, to be set for a reasonable overload value when the unit is installed and the motor will always kick out when that load is applied. The overload device will also act to shut a well down if the rods break. The unbalanced condition resulting from rod breakage establishes high load peaks in the motor circuit that will trip the motor starter.

Pumping problems in Kansas require much consideration because most fields make considerable salt water which materially add to the expense of securing the oil and local conditions vary from place to place so there is no one type of unit that is universally efficient in Kansas or in any other state. None of the wells are more than 5,000 feet deep that require to be pumped at this time and most of them are less than 2,000 feet deep because the largest number of wells are in the eastern Kansas district where producing formations are seldom deeper than 2,000 feet.

SOCONY FETES DRIVERS

Seventy-seven motor vehicle operators connected with the Mill Basin district of the Socony-Vacuum Oil Co., Inc., were feted at a recent dinner given in their honor by the company at the Knights of Columbus Club rooms in Brooklyn, N. Y.

The yearly division safety award, a bronze plaque, was presented to the group by E. E. Grignard, industrial relations manager of Socony-Vacuum's city division, and each man received a gold "Safe Driving" emblem with a certificate.

Abnormal Atmospheric Conditions and Their Effect on Oil Operations

Following the drought of 1934 and the spring of 1935 there have been numerous dust storms in the entire region west of the Mississippi River and east of the Rocky Mountains. Some of this dust has actually been observed in cities along the eastern seaboard and one report states that European countries have identified some of the dust as originating in the western part of the United States which must have drifted across the Atlantic Ocean to fall in England and on the Continent.

Dust storms are by no means new as geological history clearly shows that in past ages some land erosion and building up has been the work of winds. The atmosphere transports material in suspension and by traction, that carried by the latter method consisting of coarse material of which the greater part is sand. The materials transported in suspension are mostly clay and silt particles and very fine sand.

Twenhofel in "Treatise of Sedimentation," gives the following table of distance of transportation by suspension for particles of various sizes quoting from J. A. Udden, "The mechanical composition of wind deposits," Augustana Library Publication, No. 1, 1898, page 65.

Material and dimensions—	Distance of transportation:
Particles 1 to 8 mm. in diameter	A few feet
Coarse and medium sand, 1 to ¼ mm.	Less than 1 mile
Very fine sand, 1/16 to 1/8 mm.	A few miles
Coarse silt, 1/32 to 1/16 mm.	200 miles
Medium silt, 1/64 to 1/32 mm.	1,000 miles
Fine silt and clay particles, up to 1/64 mm.	Around the globe

With repeated lifting the coarse material may also be transported long distances.

The conditions that have brought about the dust storms of the western part of this country date back to the period when prairie soil was broken for farming and the natural grass destroyed. This grass, known as "buffalo" or "bunch" grass, served to hold the top soil together and resist wind erosion. As long as the land yielded crops and sufficient moisture accumulated to hold the top soil together dust storms were not severe. Long periods of little or no rainfall permitted this top soil, made up largely of clays, and volcanic ash, to pulverize completely when dried out.

Burning dried grass from land to prepare it for a new crop has baked the soil and when rain does not fall the winds will pick up this disintegrated material and carry it away.

Composition of Dust

To watch a dust storm forming is interesting. Puffs of wind stir up a little cloud of dust that rises a little way into the air and soon is no longer visible. These repeated puffs actually start into the atmosphere a very large quantity of fine material that is gradually carried higher by stronger winds until it is assembled into a great dust cloud when a strong wind blows across the region and sweeps the already suspended fine particles together with added larger particles picked up from the ground as the high winds cross the dried out farm and grazing land.

The general term loess has been applied to the deposits of this dust blown material, but while loess is usually a wind deposit a very similar material develops from water deposition. Loess will vary greatly in chemical composition as shown in the following table:

	*1 Per cent	2 Per cent	3 Per cent	4 Per cent	5 Per cent
SiO_2 ..	64.61	60.09	59.30	19.24	44.64
Al_2O_3 ..	10.64	7.95	11.45	3.26	13.19
Fe_2O_3 .	2.61	2.61	2.32	1.09	5.12
FeO ..	0.51	0.67	1.55	....	....
MnO ..	0.05	0.12	....	trace	0.13
MgO ..	3.69	4.56	3.29	2.75	2.96
CaO ..	5.41	8.96	9.78	38.94	13.91
Na_2O ..	1.35	1.17	1.80	trace	0.59
K_2O ...	2.06	1.08	2.17	trace	1.71
H_2O ...	2.05	1.14	0.96	1.67	3.89
TiO_2 ..	0.40	0.52	0.60	....	....
P_2O_5 ..	0.06	0.13	0.20	0.23	0.94
CO_2 ...	6.31	9.63	7.41	29.57	8.55
C. org. .	0.13	0.19	....	2.96	3.43
SO_3 ..	0.11	0.12	....	0.53	0.64
Cl	0.07	0.08	....	0.11	0.14
	100.0	99.62	98.73	100.35	99.84

*1 Loess from near Galena, Ill.
2 Loess from Vicksburg, Miss.
3 Loess from Kansu, China.
4 Adobe from Salt Lake City, Utah.
5 Adobe from Humboldt, Nevada.

Chinese Deposits

While there is no direct connection between loess deposits of China and this country it is interesting to contemplate what has happened in the older settled country. In Twenhofel's book it is stated that Richthofen expressed the opinion that the loess of China was produced in arid regions of central Asia, blown to leeward by the prevailing winds, and deposited on the prairie lands where the grass cover prevented the further movement of most of it; some of it is conceived to have been redistributed by streams and lakes, thus accounting for the stratified portions.

It is reported that some beds of loess in China are 300 feet thick in some places. There are some deposits in this country 100 feet thick. While it is probable that wind blown material has existed throughout geological time it does seem to be apparent that man's breaking up of land not suitable for cultivation has hastened the destruction of the surface of large areas both in China and in this country. The present series of dust storms may be the forerunner of further destructive storms of this character and the only real relief that can be expected will be a long period of rain.

There is a large deficiency of moisture in all of the western states and it will take a long time to again soak the soil and accumulate sufficient moisture to resist wind erosion. One authority states that deficiency in rainfall has been caused by sun spots and predicts that during the next seven years there will be increased rainfall in this region when sun spots are again at a minimum.

Dust has been reported encountered by airplanes at elevations in excess of 12,000 feet and in one instance reported an aviatrix attempting a transcontinental flight was lost in a dust cloud at an elevation of 23,000 feet over a valley in the Rocky Mountains in Colorado. This elevation above the land surface corresponds to some previously reported observations when the height of the mountains in the region is taken into consideration and up-currents of air from the peaks of the mountain ranges might easily have carried dust to these heights.

This dust has caused much trouble in the intake of air systems on all types of internal combustion engines both on the land and in the air. It is reported that during the height of dust storms it has been necessary to shut down power plants to avoid excessive scoring of cylinder walls and bearings. Many machines have been equipped with air filters that have reduced this damage to a minimum.

Visibility both in the air and on the ground has been very low during recent dust storms. When at their height it has been impossible to see more than a few feet in front of an automobile and airplanes have been grounded because visibility from the air was so low as to make flying dangerous.

Character of Dust Storms

The following accounts of observations made following and during dust storms in recent years are reported as follows:

During a dust storm that swept over Washington, D. C., in May, 1934, observers of the U. S. Weather Bureau measured the quantity of dust in the air along the path of the storm.

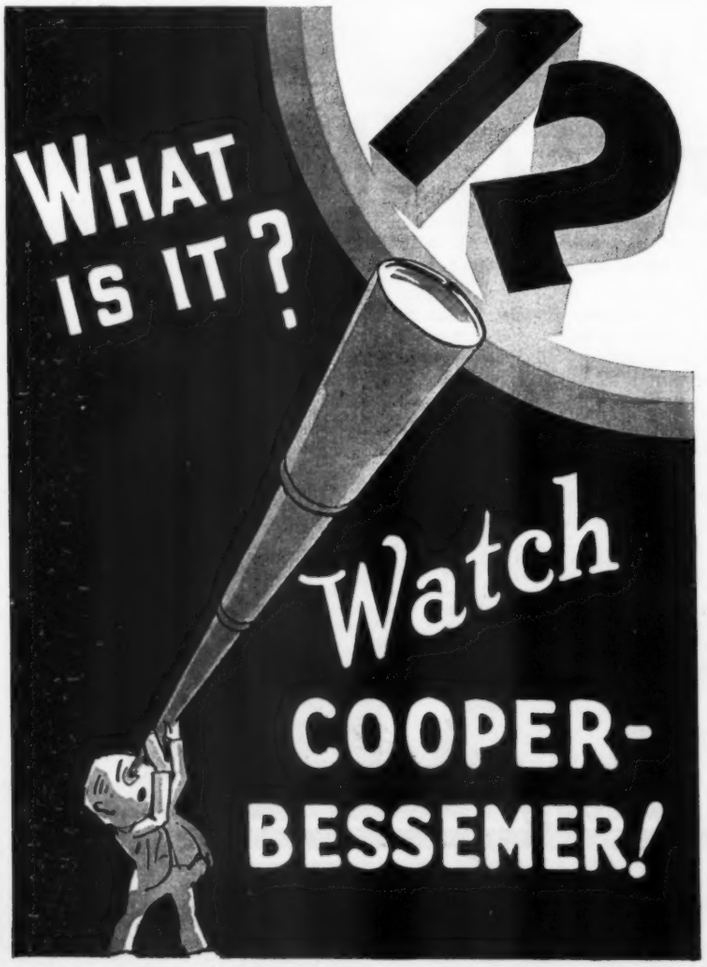
These measurements showed that each cubic inch of air contained 150,000 particles of dust. The normal dust content is 6,400 particles to the cubic inch, the previous high record was 113,000. The particles collected during those experiments were almost twice the size of those usually present. Dr. W. J. Humphreys, of the Weather Bureau, estimated that 5,000 tons of dust were constantly floating over the city of Washington throughout the day. This was enough, he figured, to load a string of carts 25 miles long, allowing 25-foot spaces between carts, and a ton of dirt to each.

A remarkable shower of dust fell in eastern Nebraska on the evening of April 29, 1933. It was reddish brown, or "rust" in color, and it undoubtedly came from somewhere in the southern Great Plains, western Texas, Oklahoma, or Kansas. Much of the soil of that region is of a fine texture and reddish color, known geologically as the Permian beds.

The two unusual features of the Nebraska dust fall were its unusually large amount and the fact that in most of the area covered it fell of its own weight, after the rain had ceased. The deposit at Lincoln, Neb., seems to have amounted to about 30 tons per square mile. This is an average of five careful measurements.

Most other falls previously reported ranged from 2 to 15 tons per square mile. A notable fall in Wisconsin in March, 1918, studied by Prof. E. R. Miller at Madison, yielded 13.5 tons, but in 1901 various places in Europe reported dust falls, ranging up to 31 tons, and a fall of 85 tons per square mile was reported in Prussia in 1859.

Areas whose rocks are undergoing disintegration rather than decomposition are probably largest contributors to the materials transported by the atmosphere. The Madison dust fall of March 9, 1918,



TIME-TESTED

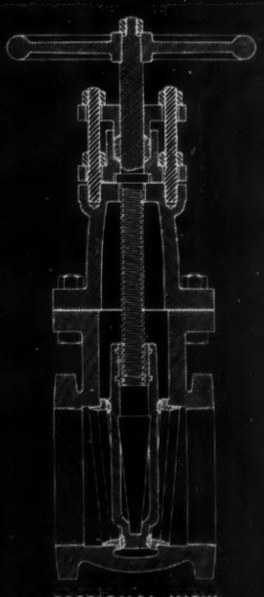
Outside Screw and Yoke

Non-Rising Stem

JARECKI IRON BODY WEDGE GATE VALVES

● Soundly designed and ruggedly constructed of the highest quality materials, JARECKI Iron Body Wedge Gate Valves will stand the gaff. . . . Reliability of performance and economy of operation, built into every JARECKI valve, have led a host of users to recognize them as the standard of quality.

125 Lbs. Steam Working Pressure
175 Lbs. O. W. G. Working Pressure



SECTIONAL VIEW
Furnished either Bronze-Mounted or All Iron

Jarecki
MANUFACTURING COMPANY
"Since 1852"

General Offices: St. Louis, Mo. *Home Office and Factory: Erie, Pa., U. S. A.*

District Offices:—Pittsburgh, Pa.; Tulsa and Bartlesville, Okla.; Newark, Ohio; Eastland and Dallas, Texas; Lawrenceville, Ill.

Branch Stores at all important places in the Oil Country

BW PRODUCTS for pumping wells
The KEY to LOWER LIFTING COSTS
CORRECTLY DESIGNED • • ECONOMICALLY PRODUCED
REASONABLY PRICED

COLLINS BELT CLAMP

ELIMINATE BOLT BREAKAGE

This unit revolutionizes Belt Clamp design. It eliminates bending stress on bolts, as it concentrates load along neutral axis. Made of selected, rugged material.

AT ALL GOOD SUPPLY STORES

BRADFORD MOTOR WORKS INC.
OIL WELL SUPPLIES
BRADFORD, PA. TULSA, OKLA.
EXPORT OFFICE – 30 CHURCH ST. – NEW YORK CITY

Already the pipe industry has discovered the advantages the *"Cleveland"* Thread Protector has over the old fashioned, ordinary kind..... 100% protection..... simplicity...durability...economy.

Field-End Protector
PATENTED

Coupling End Protector

Insist on the "Cleveland" for your protection

SAMPLE AND FULL INFORMATION ON REQUEST.

The
CLEVELAND HARDWARE & FORGING *Co.*
3272 E. 79th St. CLEVELAND, OHIO

had its materials "dominantly composed of feldspar and quartz with very small amounts of other constituents. Kaolin was not abundant and the feldspars were entirely unaltered," according to a report made by Winchell and Miller. The material contained some vegetable matter and also some diatoms. A complex mineral composition would seem to be the rule.

The larger particles which are rolled on the ground consist largely of quartz, but locally calcareous matter is the composing material. Sands of gypsum also occur, and dunes of clay have been described by C. L. Herrick in "The Geology of the White Sands of New Mexico." The dune sands of northern Indiana seem to contain few heavy minerals and soft materials do not seem to be common. Rarity of heavy minerals cannot, however, be stated to be a characteristic of eolian deposits, but may as well be interpreted as due to scarcity of such in the source of supply. Absence of soft minerals, on the other hand, may be due to long transportation or to rarity of these minerals at the places where winds obtain their materials.

Enlargement Program At Bayway Refinery

(Continued from Page 37)

surface are of special interest. The large space makes it unnecessary to use an air preheater which was thought undesirable due to the corrosive nature of the fuels burned. In this connection to facilitate cleaning, the economizer is divided into three sections. In each section the tubes are arranged 14 wide and 26 high. The tubes which are also 2½-inch are 40 feet long and bent into hairpin loops. The tubes are not staggered but are in parallel lanes to facilitate cleaning. The horizontal tube arrangement minimizes maintenance. Due to the nature of the fuel there is some corrosion and with the horizontal arrangement only part of the tubes are attacked and they can be readily removed. With the vertical tube arrangement part of all the tubes would be attacked, necessitating 100 per cent replacement.

Eight Burners

Fuel is supplied from eight burners. These burners can burn oil, gas and powdered coal simultaneously. Pressures up to 7-inch are maintained on the burners by means of a windbox. Six of the burners will maintain the maximum capacity of the boiler. The water for the two largest boilers is supplied by three centrifugal pumps, two of which are driven by turbines and one by a motor. The water treating facilities constitute one of the major features of the operation. The water is largely obtained from a small stream passing through the plant requiring a carefully controlled treating system to supply feed water.

The facilities to burn pulverized coal provide for changed conditions in regard to the availability of fuels. In the handling of the coal many of the facilities previously employed in burning anthracite coal have been used. The pulverized coal system consists of two 7½-ton per hour ball mills equipped with exhausters and ducts so arranged that each mill can supply four burners. The coal is fed from overhead bunkers through automatic scales to the mill feeder mechanisms.

Coal is carried to the bunkers by a large traveling crane from a storage pit which has a capacity of 4,000 tons. The pit is divided into compartments and it is used to store refinery waste and ashes. The coal crane is used to carry ashes to a bin for loading into cars. It is also used to transport refinery waste into a feed bin where it is made ready for use in the colloidal fuel plant. Ashes are sluiced hydraulically a distance of 200 feet from the furnace hopper to the storage pit.

The instrument control features are similar to those found in the latest public utility installations. The feed-water pressure, water level and draft are controlled automatically. An instrument not commonly found in an oil refinery is a smoke density recorder.

Practical Examples of Magnetic Prospecting

(Continued from Page 34)

the simple law of probability most any method would have at least a 25 per cent chance to locate structures on or

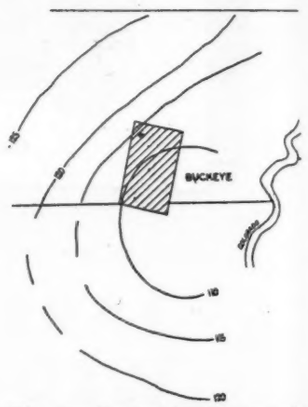
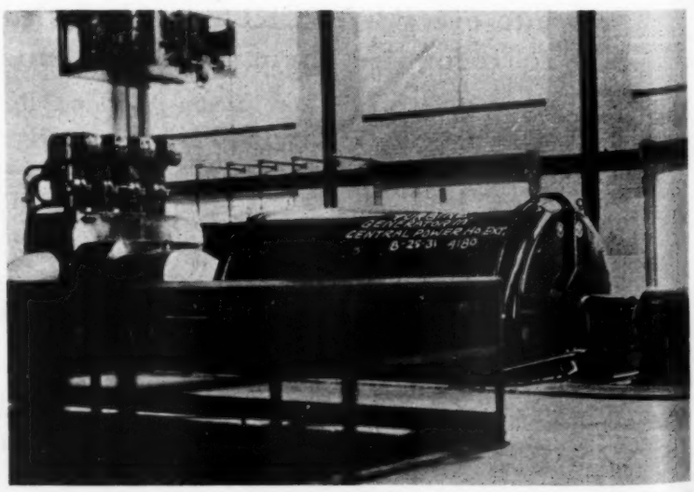


Fig. 8 — Semiregional magnetic isogams in the Buckeye Field, Matagorda County, Texas

near reliable old prospects, because there are just four directions in which to move the original center.



New 9,375 kva turbine generator at central power plant. Operates at 650 pounds steam pressure, 750°F. Exhaust steam at 125-175 pounds is available for plant processing

The Conoco Travel Bureau

has been called

"The best business-getter in the history of the oil industry"

Your customers receive, free of charge, the most complete travel service in America, sent postage paid.

Conoco Travel Bureau travelers look for the Conoco Red Triangle when they need gasoline and oil on their trips.

"That Conoco Travel Bureau service you got for me made this trip the best we ever took. Believe me, we're using nothing but Conoco Products from now on to show our appreciation!"

They feel this way when they return—and you get their business the whole year 'round!

No other oil company operates a travel service that even approaches that of the Conoco Travel Bureau in completeness and accuracy. To appreciate its value in building your business, you should know how it works.

How the Service Works

Conoco jobbers and dealers offer this service free to all motorists. The motorist fills in an application card, which is sent to Conoco Travel Bureau, Denver. When the service arrives—postage paid—the motorist is invariably amazed at its completeness. There are maps for every state he will visit, with his best routes and latest road conditions individually marked. In addition, he receives hotel and camp directories that give locations and rates and illustrated booklets on scenic and historic sights. With the service is a personal letter and a Conoco Passport, which influences him to stop at Conoco Stations.

Do you wonder that customers are grateful to the Conoco dealer who provides him with such a service—that these customers give that dealer their business all the year?

A Billion Miles of Travel

We estimate that about 350,000 motor parties will travel approximately one billion miles this year on trips planned by the Bureau. 350,000 firm friends of Conoco, who will go out of their way to get Conoco Products—and use them the rest of the year!

Get the Whole Story

Talk to a Conoco jobber or dealer about the value of Conoco Travel Bureau service. Or write our nearest division office and ask a Conoco man to give you the full story of Conoco merchandising methods, including the Bureau.

CONOCO

CONTINENTAL OIL COMPANY

ESTABLISHED 1875

ALBUQUERQUE BUTTE CHICAGO DENVER FORT WORTH KANSAS CITY LINCOLN
NEW YORK PONCA CITY RICHMOND SALT LAKE CITY

Laws Enacted by 1935 Kansas State Legislature

The Kansas State Legislature has passed several laws during the 1935 session of interest to the oil companies operating in that state, and three of them follow.

SENATE BILL NO. 195

An act to regulate the abandoning of oil and gas wells and providing a penalty for the violation of the provisions of this act, and repealing Sections 55-116, 55-123, 55-124, 55-125, 55-126 and 55-127 of the Revised Statutes of Kansas of 1923.

Be it enacted by the legislature of the State of Kansas:

Section 1. It shall be the duty of the owner or operator of any well which is now drilling or drilled or that may hereafter be drilled for the purpose of discovery of oil and gas, before abandoning same, to shut off and exclude all water from entering oil-bearing or gas-bearing sand, strata, or formation encountered in the well and to use every effort and endeavor to protect any underground or surface water suitable for domestic or irrigation purposes from infiltration or addition of any detrimental substances, in accordance with methods, rules and regulations adopted and promulgated by the State Corporation Commission and under its direction. Before any work is commenced to abandon any well, the owner or operator thereof shall give written notice to the State Corporation Commission or agent of the commission as hereinafter designated, of his intention to abandon such well; the date upon which the work of abandonment shall begin, and that he will plug the well in accordance with the rules and regulations as prescribed by the commission. That within 15 days after the plugging of any well has been accomplished, the owner or operator shall file an affidavit with the State Corporation Commission setting forth in detail the method he used in plugging the well. That thereafter the State Corporation Commission shall furnish a copy of said affidavit to any person requesting the same, upon payment of a reasonable fee therefor, to be fixed by the commission.

Sec. 2. The State Corporation Commission is hereby authorized and directed to constitute and appoint such agent or agents as may be necessary to represent it and in its behalf in all matters in connection herewith. Said agent shall have had at least two years' practical experience in oil production.

Sec. 3. The State Corporation Commission is hereby directed to adopt such reasonable rules and regulations as may be necessary and to provide the method by which said well or wells may be abandoned and plugged.

Sec. 4. The State Corporation Commission is hereby authorized and directed to assess the actual costs and expenses incurred herein in the supervision of the abandonment of any well or wells affected by the terms of this act in a fair and equitable manner, and may in its judgment require a cash deposit sufficient to cover such expenses prior to the abandonment of said well or wells, or a bond in such amount and under such terms as it may require.

Sec. 5. Any person, owner or operator violating any of the provisions of this act shall, upon conviction thereof, be deemed guilty of a misdemeanor, and shall be fined in the sum of not more than $500 or by imprisonment in the county jail of not more than six months, or be subject to both fine and imprisonment.

Sec. 6. That Sections 55-116, 55-123, 55-124, 55-125, 55-126 and 55-127 of the Revised Statutes of Kansas of 1923 be and the same are hereby repealed.

Sec. 7. This act shall take effect from and after its publication in the official state paper.

HOUSE BILL NO. 278

An act to regulate the repressuring and water flooding of oil and gas properties.

Be it enacted by the legislature of the State of Kansas:

Section 1. The owner or operator of any well, or wells, which produces oil or gas from any sand, strata, or formation, shall be permitted, in the interest of oil and gas conservation, to introduce and inject air, gas, water, or other fluid under pressure upon such sand, strata, or formation, for the purpose of recovering the oil and gas contained therein: Provided, that the owner or operator of a well into which water or other fluid is to be introduced into the sand, strata, or formation, shall make a written application to the State Corporation Commission for authority so to do, and written approval has been granted him by the State Corporation Commission: And provided further, that the operation shall be done under the rules and regulations of the commission.

Sec. 2. The State Corporation Commission is hereby directed to prescribe such rules and regulations as are necessary to carry out the provisions of this act.

Sec. 3. The State Corporation Commission is hereby directed to assess any cost that may be incurred under the provisions of this act against all interested parties in such proportion as may be just and equitable.

Sec. 4. This act shall take effect from

"That Red-Headed Float Shoe of LARKIN'S sure is a honey!"

"You said something—with that red concrete we know exactly when we've gone through the shoe!"

"Another thing I like about Larkin Float Shoes and Collars, Bill, is that the pressure on the valve is supported by the entire concrete plug."

"Yes—and the way those Larkin valves are machined and ground, you've got a perfect water-tight fit."

At All Supply Stores

Warehouse stock at Houston, Texas, Tulsa, Okla., and in East Texas.

LARKIN PACKER CO., ST. LOUIS

LARKIN PACKER CO.

Why The Chemical Process Company, Inc. is the LEADING ACID TREATING COMPANY.

1. We are giving the best SERVICE.
2. Our treaters are practical well men, specially trained in acid treating, who know pressures and formations. They treat more wells each month than any other workmen, and this SUPERIOR EXPERIENCE is your guarantee that you are getting the best to be had in acid work.
3. We use the BEST EQUIPMENT money can buy. High pressure and High speed pumps far superior to those used by others. No job is too tough for our equipment.
4. For your protection we carry FULL INSURANCE to cover every possible hazard.
5. WE GET RESULTS.

Call us for instant service anywhere in the Mid-Continent area.

The Chemical Process Company, Inc.

Main Office: Breckenridge, Texas

Call our nearest service office:

Wichita, Kansas—Tel. 2-2478—R. G. Clay
Seminole, Oklahoma—Tel. 844—J. B. D. Woodburn
Big Spring, Texas—Tel. 285—D. B. Striplin
Wichita Falls, Texas—Tel. 2-4307—W. E. (Bill) Norton
Breckenridge, Texas—Tel. 206—P. W. Pitzer, C. K. West, C. F. Hogan, G. R. Whitney

and after its publication in the official state paper.

HOUSE BILL NO. 280

An act relating to the disposal of salt water.

Be it enacted by the legislature of the State of Kansas:

Section 1. That the owner or operator of any oil or gas well which may be producing and which produces salt water or waters containing minerals in an appreciable degree, shall have the right to return said waters to any horizon from which such salt waters may have been produced, or to any other horizon which contains or had previously produced salt water or waters containing minerals in an appreciable degree: Provided, that the owner or operator of such well makes a written application to the State Corporation Commission for authority so to do, and written approval has been granted him after investigation by the State Corporation Commission: And provided further, that the State Corporation Commission is hereby directed to prescribe such rules and regulations as may be just and equitable to so carry out the provisions of this act.

Sec. 2. Any person, owner, or operator violating any of the provisions of this act shall, upon conviction thereof, be deemed guilty of a misdemeanor, and shall be fined in the sum of not more than $500, or by imprisonment in the county jail of not more than six months, or be subject to both fine and imprisonment.

Sec. 3. This act shall take effect from and after its publication in the official state paper.

Average Size and Number Of Oil Wells in Kansas

Average well size classification	No. wells
1,950-2,050	75
1,850-1,950	..
1,750-1,850	..
1,650-1,750	..
1,550-1,650	1
1,450-1,550	4
1,350-1,450	6
1,250-1,350	..
1,150-1,250	19
1,050-1,150	26
950-1,050	..
850- 950	..
750- 850	..
650- 750	5
550- 650	23
500- 550	..
450- 500	4
400- 450	3
375- 400	51
350- 375	18
325- 350	81
300- 325	52
280- 300	20
260- 280	7
240- 260	..
220- 240	105
200- 220	9
190- 200	1
180- 190	1
170- 180	..
160- 170	..
150- 160	42
140- 150	26
130- 140	3
120- 130	109
110- 120	42
100- 110	43
90- 100	9
80- 90	121
70- 80	62
60- 70	277
50- 60	24
45- 50	25
40- 45	73
35- 40	..
30- 35	199
25- 30	33
20- 25	66
15- 20	262
10- 15	254
5- 10	2,937
0- 5	14,441
Total	19,565

COLOMBIA TEST DRILLING

PETROLIA, Ontario, Apr. 20.—Harry W. Smith, who left recently for Cartagena, Colombia, under a two-year contract with the International Petroleum Co., will be core drill foreman for the company. He will have charge of the drilling of 300 holes from 60 to 300 feet for the purpose of establishing seismographic readings registering the shocks and undulatory movements of earthquakes. The work will be carried on by the Colombian government in conjunction with the International Petroleum Co., some 40 miles from the proven oil fields for the purpose of securing information for exploration purposes.

Eastern Production Men To Hold Meeting in June

PITTSBURGH, Pa., Apr. 22.—Subjects of importance to the oil and gas industry will be discussed at the annual

J. H. NEWLON

spring meeting of the Eastern District, Production Division, of the American Petroleum Institute to be held in the William Penn Hotel, June 5 and 6.

District Chairman J. H. Newlon announces that papers to be presented will include: "Future of Natural Oil Producing Methods in the Eastern United States Oil Fields," "Flooding, Past and Present, Together With Its Future Possibilities," "Latest Methods of Pumping Oil, Including Equipment," "Latest Methods of Fluid Removal From Gas Wells," "Acid Treatment of Oil and Gas Bearing Formations," "Past Experiences and Future Possibilities of Locating Subsurface Structures by Seismograph in the Eastern Oil and Gas Fields," and "Plugging Off Permeable Sand Lenses in Repressuring Projects."

On Wednesday evening, June 5, the annual stag dinner will be held, with F. F. Schauer, Equitable Gas Co., as toastmaster. At the final session on Thursday afternoon the annual election of officers will be conducted.

The Eastern district includes New York and New Jersey on the east, Illinois on the west, Michigan on the north and Kentucky and Virginia on the south.

The committee on program and general arrangements follows: J. H. Newlon, chairman; J. C. Askam, F. E. Eckert, J. G. Montgomery, Jr., Dr. J. French Robinson, D. P. Hartson, C. A. Bonine, H. H. Phillips, and K. F. Treschow.

JOHN M. LOVEJOY'S OPINION

NEW YORK, Apr. 22.—John M. Lovejoy, president of the Seaboard Oil Co. of Delaware, expressed an optimistic view on the petroleum situation at the annual meeting of stockholders. The industry "is going pretty good," he said.

For the quarter ended March 31, Seaboard had net profit of $439,177, equivalent to 35 cents a share on the capital stock. In the same quarter last year profit was $368,219, or 29 cents a share.

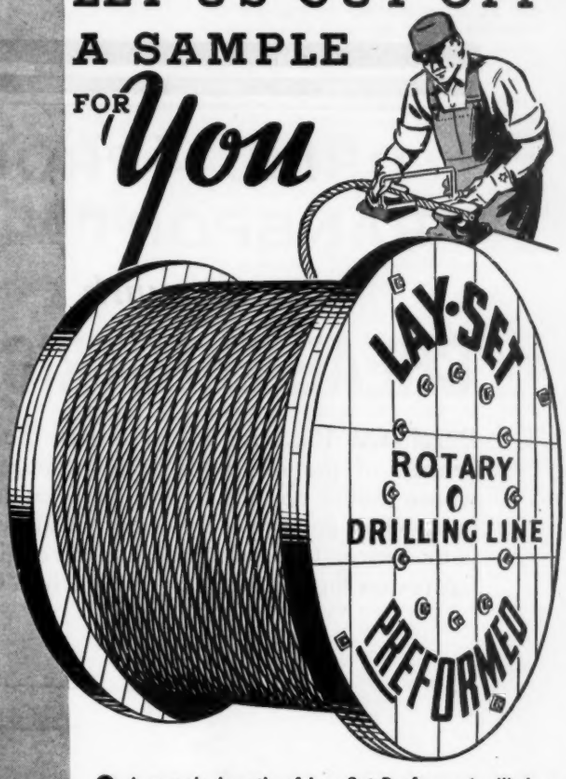
GASOLINE PUMP TAX

QUEBEC, Quebec, Apr. 20.—The Quebec provincial government is planning to impose a tax on gasoline pumps, of $1 in places under 5,000 population, $2 where it is over 5,000 and $3 where over 25,000.

R. J. FLOOD RESIGNS

Robert J. Flood, manager of the sales promotion department for the Gulf Refining Co., Pittsburgh, Pa., has resigned. An announcement of his plans will be made later.

LET US CUT OFF A SAMPLE FOR You



● A sample length of Lay-Set Preformed will do a better job of selling, all by itself, than could be done by a whole flock of salesmen. You can take it apart, strand from strand and wire from wire, then put it together again—exactly as you received it. By this simple test Lay-Set will prove how the preforming—

. . . does away with all internal stress; makes Lay-Set *resist* kinking; compels every wire and strand to carry its full load; makes Lay-Set much easier to handle and thereby cut down the time and cost of replacement, splicing, socketing. All of which will be proof in itself that Lay-Set Preformed Rotary Lines will last longer.

Send for a sample of Lay-Set Preformed Rotary Lines today. Write us—right now.

HAZARD WIRE ROPE COMPANY, Inc.
Wilkes-Barre, Pennsylvania
An Associate Company of American Chain Company, Inc.
In Business for Your Safety
District Offices: New York, Chicago, Philadelphia, Fort Worth, San Francisco, Pittsburgh, Denver, Los Angeles, Birmingham, Tacoma

NRA CODE ACCO

LAY-SET *Preformed* ROTARY LINES

An apple each day keeps the doctor away—

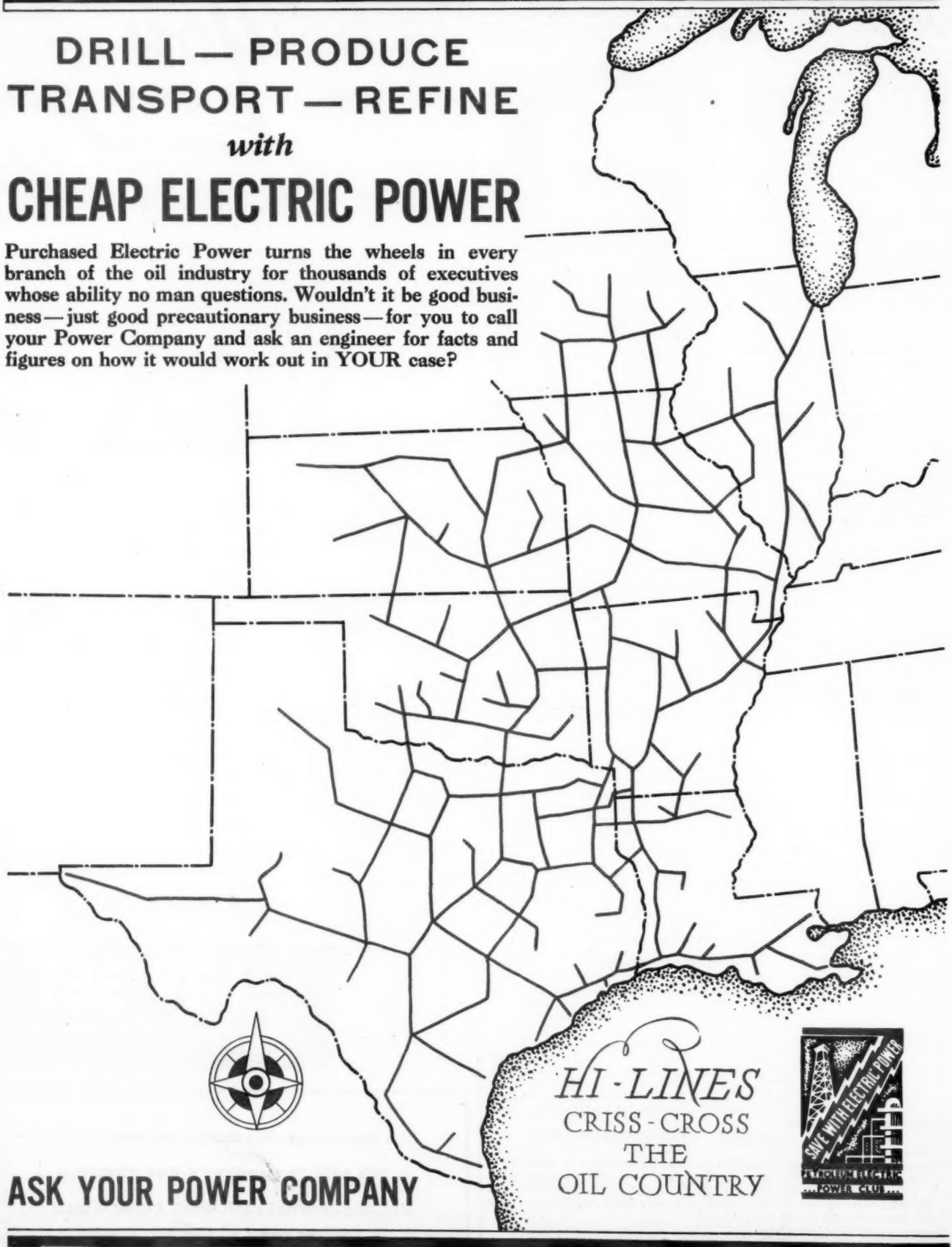
It's said to produce a fine outcome.

But the Journal each week keeps a man at the peak

Of his powers to produce a fine INCOME.

DRILL — PRODUCE
TRANSPORT — REFINE
with
CHEAP ELECTRIC POWER

Purchased Electric Power turns the wheels in every branch of the oil industry for thousands of executives whose ability no man questions. Wouldn't it be good business — just good precautionary business — for you to call your Power Company and ask an engineer for facts and figures on how it would work out in YOUR case?



HI-LINES
CRISS-CROSS
THE
OIL COUNTRY

SAVE WITH ELECTRIC POWER
PETROLEUM ELECTRIC POWER CLUB

ASK YOUR POWER COMPANY

Limestone Reservoir Rocks of Kansas React Favorably to Acid Treatment

By C. E. CLASON[1] and JOHN G. STAUDT[2]

The primary purpose of acidizing is to increase the porosity and permeability of the producing horizon in oil or gas wells so that more oil and/or gas can move through the formation and into the hole. It is not within the scope of this paper to theoretically discuss the reasons for acidizing and the mechanics of the acid's action but rather to show in a general way what acidizing has done in Kansas and why the art of acidizing should be closely tied up with the future expansion of the oil and gas industry in Kansas. For discussion of chemicals as used in acidizing the authors suggest articles by Putnam and Fry* and by Wright and Ginter†.

The first well treated in Kansas was the Central Petroleum Co.'s well, No. 1 Ed Oswald, located in Section 8-12-15w, Russell County, producing from the Kansas City lime. This well was treated on January 22, 1933. It was completed May 30, 1924, for a reported initial production of 1,000 bbls. per day. At the time of treatment the well had declined to 2 bbls. per day. It was treated with 880 gallons of inhibited acid, 50 gallons of blanket, and 15 gallons of paraffin solvent. This well came back for 108 bbls. after the load used in the treatment had been removed. Production held up for several months at this figure. Nathan Appleman, of the Central Petroleum Co., states that at the present time, which is two years and three months after treatment, the well is still producing 20 bbls. of oil daily.

The second well treated in Kansas was the Central Petroleum Co.'s well, No. 5 Sutton, located in Section 5-12-15w, Russell County, and treated January 23, 1933. This well was treated with 730 gallons of inhibited acid, 2 gallons of blanket, 5 gallons of water seal, and 15 gallons of paraffin solvent. The well was completed October 4, 1925, for 120 bbls., but at time of treatment was making but 2 bbls. per day. After treatment the well produced 146 bbls. of oil per day, or more than the original production of the well. Both of these wells are located in the Fairport Pool, which was one of the most ideal spots in the State for acidizing.

The per well production in this pool before the beginning of acidizing was 7 bbls. per well per day. Most of the wells in the field were acidized during the first year after the first treatment, and Mr. Appleman reports that at the present time average production is 24 bbls. per well, over three times more than it was before any wells were acidized. Even though prorated, the field has produced during this two-year and three-month period over 1,500,000 bbls. of oil. Considering the low production of these wells before acidizing, it is apparent that the ultimate recovery has been greatly increased over the normal ultimate which might have been expected had no wells been acidized, since many of the wells were approaching their economic limit.

Results as obtained on the above two wells and on many others which were soon treated naturally caught the interest of the Kansas oil men since production in Kansas came predominately from limestones. The wells drilled in southeastern Kansas prior to 1915 were mostly producing from the Bartlesville sand but as production moved farther north and west, production was obtained from many lime formations. At the present time nearly all of the wildcatting in Kansas is looking for production in one of several lime horizons. Since the date of the first treatment in Kansas it is estimated that at least 3,000 wells have been acidized in the State, and this number is increasing very rapidly. It is estimated that as many wells are being treated in Kansas at the present time as in any other oil-producing state with the possible exception of Texas.

Lime Horizons

There are a number of lime horizons which have responded successfully to acidizing. An analysis of 200 treatments made during the winter of 1934 and 1935 has been made to determine the formations acidized and the relative number of treatments made in each of these formations. Table 1 lists these formations in the order of number of treatments made of the total of 200 wells analyzed.

The procedure used in acidizing wells in Kansas has varied from well to well because a treatment must take into consideration the individual log and record in order to give the well the best possible chance to respond. For this reason it is impossible to outline a treatment which would be applicable to all wells in Kansas. Each well must be considered as a separate problem and the results obtained will depend greatly on the manner treated.

TABLE 1

Formation—	No. of treatments
Kansas City	56
Mississippi	36
Siliceous (Arbuckle)	31
Hunton	29
Viola	22
Oswald	12
Oswego	5
Chat-Dolomite	4
Others	5
Total	200

The Carr method is used in a majority of the treatments. This method consists of first filling the hole with oil, and then introducing the acid down the tubing as oil is bled off from the casinghead. This bleeding is continued until the acid has reached the bottom of the tubing and risen in the hole to the top of the pay formation. The valve on the casinghead is then closed and the acid forced into the formation. The pressure created at the bottom of the hole by the liquid in the tubing and in the casing may be sufficient to force the acid back into the rock but if necessary pressure can be applied to the fluid in the tubing by means of pumps on the acid truck.

If the well produces water it is desirable to remove all water from the well before treatment. This can be done in two ways. If the formation has sufficient porosity, the well may be filled with oil the day before treatment. The column of oil in the well will exert sufficient pressure at the base to force the water back into the formation. When the treatment is begun, the well can be refilled and the treatment may proceed in the usual manner. A method worked out in Kansas for this type treatment is to be preferred where there is insufficient information regarding the rate at which the formation will take fluid. This consists of filling the well with oil through the casing. The oil will form a column on top of the water and will force the water up the tubing. By circulating oil down the casing, the water will be forced out of the tubing until all the water is out of the well. Since it is necessary to put pressure on the casing during this circulation to make up for the difference in specific gravities of the water and the oil, this method is usually called "pressuring out" the water.

Some wells in Kansas have been treated down the casing but this is not to be recommended except in certain specific types of wells which have low rock pressure, cemented casing seat, and in which it is not necessary to control the acid. Even in this type of well, treatment through the tubing is preferable as it is not necessary to count on the acid sinking through a column of oil standing in the hole.

Packers Used

The use of packers in connection with acidizing has become a common practice in Kansas and will grow to be more so as the technique of acidizing advances in the future. By the use of the Carr method of treating as outlined above it has been possible to put the tubing perforations within 3 feet of an uncemented casing seat with no harm to the casing seat. Where the casing seat is known to be in bad shape, however, it is bad practice to take a chance on bringing water into the well from behind the pipe and the use of a tubing packer set just below the casing seat has proven effective. In treating with a packer of this type it is necessary to load oil on top of the packer, or if need be with water, since this load will tend to balance the column of fluid in the tubing and tend to equalize pressures acting on top of and on the bottom of the packer. The actual pressure differential across the packer will then be the difference in static pressure of the two columns due to the different specific gravities of the fluid in the tubing and in the casing plus the pressure which is put on the tubing at the surface by the truck pump. Packers will generally not withstand any more than 400 to 500 pounds although some have been known to stand much more than this.

Often packers are used in place of oil loads when acidizing wildcat wells which came in either dry or small natural producers and which have no oil available for treatment. This is accomplished by setting the packer either against the top of the pay or the bottom of the casing. The packer in this case is usually loaded with water and should be set against the bottom part of the casing if possible since it is much easier to get a good shutoff. The packer keeps the acid and the water separate and prevents the acid from becoming diluted.

More recently, however, packers have been considered as an aid in controlling the acid. The use of auxiliary chemicals such as blanket, water seal, filler and others will aid in directing the acid, but packers can be used instead of, or in addition to, these chemicals. If a formation produces from several streaks, the acid will undoubtedly follow the path of least resistance. If in the first treatment of a well producing from such a formation the acid was thought to have penetrated the bottom streak almost to the exclusion of all others, it is possible to set a packer above the bottom porous pay but below the top pay. Tubing should be

[1]Dowell Incorporated, Wichita, Kans.

[2]Dowell Incorporated, Tulsa.

*Putnam and Fry, Ind. Eng. Chem., 26 (9), 923 (1934).

†Wright and Ginter, The Oil and Gas Journal, 33 (44), 53 (1935).

Portion of Chase townsite field, Rice County, Kansas

Practice makes Profit. Check your drilling with SYFO CLINOGRAPH

The *Syfo Clinograph* is a remarkable device. The records afforded by *Syfo* are direct and accurate—easily and inexpensively obtained without the use of dangerous acids—permanent records on paper that can be filed for reference.

SPERRY-SUN WELL SURVEYING CO.
1608 Walnut Street
Philadelphia, Pa.
TULSA, OKLAHOMA
425 Petroleum Building
HOUSTON, TEXAS
3118 Blodgett Avenue
LONG BEACH, CALIF.
549 East Bixby Road (3800 Block Atlantic Ave.)

(U. S. Patent 1,962,634, and others pending)

SYFO CLINOGRAPH
also
SURWEL & H-K Surveying Instruments

plugged at the bottom and the perforations should be above the packer opposite the upper pay. In this manner the acid will be directed into the upper part of the producing formation. When using this packer method it will be necessary to use enough blanket to fill up tubing below the perforations and also to fill up the hole above the packer but below the perforations. In every treatment of this kind it will be necessary to figure out these volumes to make sure that the acid will not settle down around the packer and eat away the packer seat.

Successive Treatments

Operators in Kansas will no doubt soon make use of a procedure first tried out in West Texas which has been called "Successive Treatments of New Wells." This acidizing program is used when drilling into a formation having several producing streaks in the formation. When the top pay is drilled it is treated using the regular method, then is produced a short time and tested. The well is then deepened to the second pay, and before treating a packer is set between the first and second pays. The perforations are then placed below the packer and the packer loaded to the surface with oil. The well is then acidized through the tubing and after producing for a short time and giving the second pay a test, usually on the swab, the well is deepened. When treating the third pay a packer is set between the second and third pays and the treatment is conducted as when treating the second pay. By this method it has been found possible to treat all the pays, which might have been impossible in treating the entire producing formation at one time if one of the pays were much more porous than the other two. It is believed that this treating program, although more costly and more involved, will more than pay for itself in certain areas by opening up the entire producing horizon and giving the well every possible chance to produce the oil that is in the formation.

When using packers many operators feel it worthwhile to test the packer and make sure it is holding before beginning the treatment. This is done by loading the packer with oil or water and filling the tubing with oil. Pressure gauges are then placed on the tubing and on the casing. Pressure is applied to the tubing, and the packer is holding if no corresponding pressure is recorded on the casing. The tubing is swabbed until all the oil is removed and the well acidized. However, this is a poor procedure to follow unless the tubing can be swabbed down, as the fall of the acid through the oil will be very slow due to the small ratio of diameter of tubing to length.

Operators in Kansas have always favored the use of inhibited acid in treating their wells as it acts as insurance against corrosion of the metal equipment in the well. Some inhibitors now in use are improved to the extent that trouble from acid corrosion has practically been eliminated. However, there are inhibitors that do not give adequate protection. It is now possible to store hydrochloric acid solutions in steel tanks and to carry the liquid out to the field in steel tanks. One 10,000-gallon tank car has been used as an acid storage tank in Newton, Kans., for over two years with no trouble. It has been replaced this month with permanent steel storage tanks but the tank car has been moved to Great Bend, Kans., where it will continue to be used. The use of properly inhibited acid makes unnecessary the use of any lining on the inside of the tanks and makes unnecessary any special acid resistant metal pumps or fittings.

Acid Concentration

The concentration of acid used in treating in Kansas should be varied between limits of 7 and 15 per cent depending on several factors, which are: Type of formation being treated; type of acid being used; whether treatment is the first, second, third, or fourth in same producing horizon; whether acid is to be left close to hole or pushed back into formation; whether well is a new well or whether it has been producing for several years; the rock pressure; whether production of well is just oil or whether well makes water; and others such as location of well on structure, probable porosity and permeability of the formation. Thus, it is impossible to generalize on the subject of the proper concentration to use since all these factors plus actual field results must be considered in choosing the proper concentration.

Although in the early days of treating there was some misunderstanding as to why some companies used 40 to 50 per cent acid whereas others used only 10 to 15 per cent, this misunderstanding has largely been cleared up and acid is now commonly referred to as per cent by weight which is the only method which has any definite meaning. For instance, 15 per cent hydrochloric acid by weight is a stronger acid than what is usually known as 50 per cent by volume.

The use of hot acid in Kansas has not become general since the results do not seem to justify the added expense to the operator. Although it has been reported that better results have been obtained, many actual field results may be shown which tend to disprove this. In the Ritz-Canton area, McPherson County, several satisfactory increases were obtained using hot acid in Viola limestone. Working on the theory that in treating such a fast acting limestone it was desirable to get as good penetration as possible, a well in the same area was treated with a more dilute acid at ordinary temperature. This latter well responded with an initial production of at least twice that of any of the first group of wells treated with hot acid. The general conclusion in other areas producing from formations similar to those in Kansas seems to show that the use of hot acid is unnecessary. It is doubtful if hot acid would be of any practical value unless hot oil were circulated to get the tubing and casing well heated before introducing the acid. This may require as long as two days. If the acid is then heated and put into the well, it is probable that the acid will enter the formation at a somewhat higher temperature than formation temperature. However, this would be decidedly a disadvantage in treating many fast acting formations such as the Viola, Kansas City, and Hunton since it is desirable to get penetration back into the rock rather than merely enlarging the pores immediately around the hole.

Acid Volume

The volume of acid to be used in a treatment depends on many factors and it is almost impossible to generalize on this subject. Some factors which must be considered are the thickness of pay, the porosity of the pay, the type of producing formation, and the distance the acid is to be forced away from the hole. Actual field results in any area also are important and must always be considered when this information is available.

It has been the practice in Kansas to use a larger volume in the second treat-

Hutchinson, Reno County, Kansas

LUCEY at HUTCHINSON
In the "Center of Things" in KANSAS

Lucey Store at Hutchinson—Equipment and Supply Headquarters for Kansas Operators.

R. W. WALTERS
District Manager,
Wichita

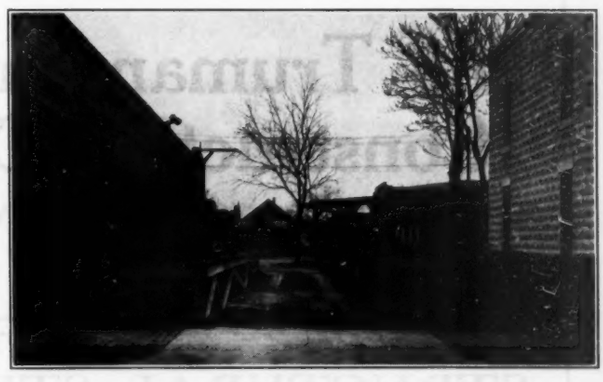
M. J. BIRD
Service Engineer
Headquarters, Hutchinson

O. H. CROWE
Store Manager
Hutchinson

C. A. MARVIN
Field Salesman
Wichita

W. V. GOSHORN
Field Salesman
Hutchinson

M. E. DAVIE
Floorman
Hutchinson



Partial view of Yard at our Hutchinson Store.

COMPLETE STOCKS—SPOT DELIVERY—INTELLIGENT SERVICE

To more adequately serve a growing list of customers among Kansas Operators, Lucey maintains a branch store in Hutchinson.

A complete stock of Lucey Drilling Equipment and other leading lines of Production Equipment and Supplies, and an experienced staff who know Kansas, insure quality products of known performance, speedy delivery and intelligent service.

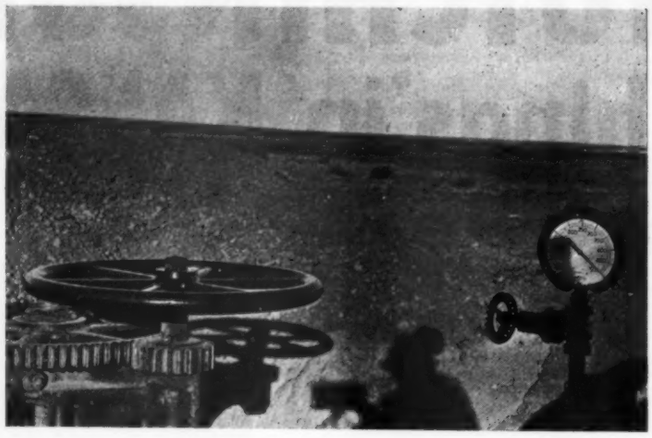
Lucey also maintains headquarters in Wichita at 402 Fourth National Bank Building—Phone 4-4435.

PRODUCTS LUCEY CORPORATION

LUCEY PRODUCTS CORPORATION

TULSA, OKLAHOMA HOUSTON, TEXAS

LUCEY EXPORT CORPORATION
NEW YORK CITY



Against the Peg for 48 hours!

Bottle-Tight Pipe Lines

The Truman-Smith Construction Co.

PIPE LINE CONTRACTORS SINCE 1919

El Dorado, Kansas

STRUCTURAL STEEL

for oil field and Refinery equipment.

CAST IRON CASTINGS

Manufacturers of

KELTNER OIL WELL PULLING UNITS

The Hutchinson Foundry & Steel Co.

HUTCHINSON, KANSAS

ment than in the first treatment and to use a larger volume in the third treatment than in either the first or second.

Table No. 2 shows the average volume of acid used in treating 177 consecutive wells which have been classified as to type of well and to number of treatment.

TABLE 2

Type of well—	No. of wells	Av. volume acid used (gallons)
Old wells	47	1,000
New wells	70	1,080
Second treatments	51	1,310
Third and fourth treatments	9	1,390
Total	177	

Several auxiliary chemicals have come into common usage in treatments in Kansas. Blanket is used in many wells both to fill up an unproductive pocket below the pay or to "blanket" off the lower part of the formation which may be producing water, and to actually go back into the formation along with the acid to deaden the downward action of the acid and in that manner increase the oil more than the water. Blanket may be used for both these purposes in one treatment. All other factors being equal, the acid is more apt to enter water producing parts of the formation rather than oil producing. This is likely to cause an undue increase in water with the result that some oil may be trapped by the water back in the formation with a subsequent decrease in ultimate recovery than increase. It is only by careful diagnosis of the well, which should include not only a study of the well being treated but also of the surrounding area, that it is possible to correctly treat the well and prevent the water from bypassing the oil. Acidizing properly applied should aid the water in pushing all the oil out of the formation rather than holding it back in the rock so that it will never come into the hole.

Water seal is used in many treatments either to work back into the formation where it will precipitate when contacting the water in the formation thereby plugging the pores and rerouting the acid up into the oil-bearing part of the formation, or it is used with blanket to give better bottom hole protection. Water seal is now available in various specific gravities which will make it still more effective in protecting bottom hole lead plugs or keeping the acid up in the hole away from water bearing formations.

Filler is used in many treatments in Kansas. The purpose of filler is to temporarily decrease the porosity immediately around the hole so that an oil column can be built up higher in the casing than would be possible without filler. Filler is a chemical cement, acid soluble, and is used so that the Carr method of treating may be more closely followed. The advantage of a greater column of oil in the casing is that it is then possible to push the acid back into the rock at a greater rate, thereby securing greater penetration.

Paraffin solvent has been used in conjunction with acidizing in Kansas and will no doubt be used more in the future. Some formations in Kansas appear to have a paraffin deposit existing on the walls of the pores even when drilled in. These deposits can clearly be seen in cores. By introducing paraffin solvent along with the acid, it is possible to not only enlarge the pores but also to clean them out. Paraffin solvent also has been used in many cases to clean up paraffin thought to exist on the face of the pay formation, which should in itself increase to some extent the production of the well.

Change in Production Methods

Oftentimes it is necessary to change the production methods after treatment in order to get the best production possible from the well. Pumping wells often flow after treatment or occasionally may better be produced on gas lift. The after treatment production may be increased by lowering or raising the tubing. The gas-oil and water-oil ratios also may be changed considerably in this manner. Excellent examples of what may be done along this line are two wells in Oklahoma which had not responded particularly well to acidizing. Both of the wells produced from the Hunton. Although the wells did not produce much oil after treatment, they would not pump off. By changing the equipment and pumping them off one well increased from 5 to 1,700 bbls. per day and the other well increased from a similarly low production to 300 bbls.

Results

No discussion of acidizing is complete without mention made of results obtained. Results compiled on a large number of wells do not mean much since the characteristics and peculiarities of the individual wells are entirely neglected. Furthermore, it is impossible to get accurate results on wells and it is more difficult to get comparative results. Some may be taken a week after treatment but most are taken the first day after the load used in treatment has been removed from the well. Table 3 gives the results as obtained on 495 wells compiled by size of well before treatment.

TABLE 3

Size of well before treatment	No. wells	Total prod. before treatment (bbls.)	Average prod. before treatment bbls./well	Total prod. after treatment (bbls.)	Average prod. after treatment bbls./well	Average increase of well after treatment bbls./well	Percentage increase
0- 10	212	1,077	5.08	22,649	106.83	101.75	2,006
11- 25	55	1,008	18.32	7,597	138.12	119.80	653
26- 100	104	5,922	56.92	28,833	277.24	220.32	387
101- 500	98	25,123	256.35	70,888	723.34	466.99	182
501-1,000	23	16,961	738.30	30,252	1,315.30	577.00	78
1,001-over	3	3,972	1,324.00	5,252	1,750.67	426.67	32
Total	495						

In general it may be said that the results obtained by treatment depend on the history of the well and upon the formation being treated. The history of the well includes such factors as the initial production, the amount of oil already produced by the well, the number of previous treatments and the size of these treatments, the method used in treating the well in previous treatments, and, what is most important, the amount of pay and the amount of oil in the formation.

An interesting analysis can be made of the type of wells treated in Kansas which show the rise in importance of acidizing. In the early part of 1932 at least 95 of the first 100 wells treated in Kansas were old wells and many of them could be called "strippers." From that point on, however, the percentage of new wells and of retreatments increased remarkably. Table 4 gives figures on 176 consecutive wells treated during the early months of 1935 and show that the percentage of old wells treated for the first time has fallen appreciably from the percentage in the early days, and that the percentage of new wells treated immediately upon completion and of wells being given retreatments have in turn increased. Of the 23 wells given retreatment within six months of the first treat-

TABLE 4

	Number wells		Per cent of total
New wells treated upon completion	66		37.5
Old wells treated for the first time	53		30.1
Retreatments, second treatment within six months of first treatment	23	57	32.4
Retreatments, second treatment more than six months but within one year of first treatment	5		
Retreatments, second treatment more than year after first treatment	13		
Third treatments	6		
Fourth treatments	2		
Retreatments, no data available on date of first treatment	8		
Total	176		100.0

(Continued on Page 58)

Kansas Pipe Line Systems Expansion in Keeping With Field Developments

The development of oil fields in Kansas had progressed by 1903 far enough to justify the laying of the first oil pipe line in the Mid-Continent area which connected the Chanute and Humboldt Pools with the Standard Oil Co. of Kansas refinery at Neodesha, Kans. The reported production for Kansas in 1902 is 332,000 bbls. from 391 wells; for 1903, 932,000 bbls. from 1,245 wells, and in 1904, after the pipe line was in operation, 4,251,000 bbls. from 3,300 wells. The average yield per well for these three years is 2.3, 2.2 and 3.5 bbls. per day respectively.

This first pipe line was constructed by the Prairie Oil & Gas Co. and was 6 inches in diameter and 32 miles long and formed the first section of the Prairie Pipe Line Co.'s system which in time consisted of more than 13,250 miles of trunk and gathering lines with pump stations and tank farms suitable for handling a maximum of 200,000 bbls. of crude oil per day, gathered in Oklahoma and Kansas.

To keep pace with the rapid development of oil fields in Kansas the Prairie Oil & Gas Co. from 1903 to 1905 built additional lines and in 1904 extended its system to the Sugar Creek refinery of the Standard Oil Co. of Indiana located near Kansas City, Kans. This was an 8-inch line and 113.33 miles in length. During the same year an 8-inch line was built from Argo pump station to the Humboldt station on the main line, a distance of 28.30 miles.

Subsequently lines were laid to all of the oil fields in eastern Kansas by the Prairie Oil & Gas Co. and extensions of the system to the south served the northeastern Oklahoma oil fields. This oil found outlet to refineries in Kansas and Indiana owned by the Standard Oil Co. of Indiana.

The Sinclair-Cudahy Pipe Line Co. laid a trunk line through Eureka, Toronto and Eldorado districts in Kansas in 1916 to join the main line from northeastern Oklahoma to East Chicago, Ind. This system was later taken over by the Stanolind Pipe Line Co. In 1931 the capacity of the Stanolind Pipe Line Co.'s main line passing through Neodesha, Kans., was increased from 75,000 to 90,000 bbls. daily. This system was extended into western Kansas in 1934 and now has an auxiliary line from Russell County to Humboldt, Kans., that has a daily capacity of 27,000 bbls. This is the largest pipe line system in Kansas.

Pipe Line Systems

With the expansion of the Mid-Continent oil fields following the opening of the Glenn Pool in 1907 and other large fields subsequently in both Oklahoma and Kansas, two major pipe line systems were extended into the eastern Kansas fields. Later there were many other systems built into Kansas, usually from the south, as extensions of systems serving the Oklahoma oil fields.

When the drilling activity was at its height around Eldorado, Kans., in 1918 the Empire Pipe Line Co. laid an 8-inch line from Guthrie, Okla., to the Eldorado Field. From Guthrie the line extended to Cushing, where it connected into the main system of the Empire company.

This project contemplated laying a line to southern Oklahoma to serve the fields in the vicinity of Healdton and deliver the oil to the Empire Oil & Refining Co.'s plant at Gainesville, Tex. The line was not extended south of Guthrie until a 10-inch line was laid to the Oklahoma City Field after its discovery and development in 1928 and the years immediately thereafter.

The Rainbow Bend Field in Cowley County, Kansas, was opened in December, 1923, by a well drilled jointly by Waite Phillips Co. and Independent Oil & Gas Co. Several months later, or in 1924, Marland Oil Co., Ponca City, Okla., purchased one-half of the half interest owned by the Independent Oil & Gas Co. and laid a pipe line to the Rainbow Bend Field from its Ponca City refinery.

In November, 1924, the Waite Phillips Co. built a pipe line and commenced to run part of their production to their own refinery at Wichita, Kans., in the early part of 1925. In 1924 Waite Phillips Co. acquired the Sterling Oil & Refining Co.'s refinery at Wichita, Kans., together with their 4-inch pipe line that transported oil from Greenwood and southeastern Kansas fields to Wichita.

After securing this refinery and pipe line Waite Phillips Co. had part of the pipe taken up and relaid to the Rainbow Bend Field to deliver oil to their refinery at Wichita, Kans., which in the meantime had been partially overhauled. This refinery was acquired by Barnsdall Refining Co., January, 1926, and is in operation and oil is still delivered to it from Rainbow Bend Field through the old line.

Oklahoma Pipe Line System

In 1917 the Oklahoma Pipe Line Co. laid an 8-inch line from its station at Drumright, Okla., on the main line

(Continued on Page 77)

SUMMARY OF DRILLING OPERATIONS IN KANSAS, 1933, 1934 AND PART OF 1935

RECAPITULATION

Year—	Total oil wells	Total dry holes	Total gas wells	Total completions
1933	395	156	23	574
1934	624	246	24	894
Increase	229	90	1	320
Per cent	58	57½	4.35	55.8
To April 3, 1935	236	61	6	303
Relative rate of increase over one-fourth of total for 1934	80%	100%	0%	79.5%

Active operations as of April 3, 1935—322.

	1933				1934			
County—	Dry holes	Oil wells	Gas wells	Total wells	Dry holes	Oil wells	Gas wells	Total wells
Anderson	....	....	....	....	4	1	0	5
Barber	....	....	....	....	1	1	0	2
Barton	4	8	0	12	8	11	0	19
Butler	4	3	0	7	24	30	3	57
Chase	2	2	0	4	0	6	1	7
Chautaqua	....	....	....	....	0	3	1	4
Cherokee	....	....	....	....	2	0	0	2
Coffey	....	....	....	....	1	3	0	4
Cowley	8	†12	†5	25	9	†9	5	23
Crawford	....	....	....	....	4	8	0	12
Dickinson	1	0	0	1	....	....	....	....
Douglas	1	0	0	1	....	....	....	....
Edwards	....	....	....	....	1	0	0	1
Elk	8	4	0	12	‡8	*19	1	28
Ellis	1	†3	0	4	1	5	0	6
Ellsworth	6	†15	0	21	5	16	1	22
Finney	....	....	....	....	1	0	0	1
Franklin	....	....	....	....	1	0	0	1
Geary	1	0	0	1	....	....	....	....
Graham	1	0	0	1	....	....	....	....
Greenwood	42	§48	1	91	31	37	0	68
Harper	12	§84	0	94	1	0	0	1
Harvey	....	....	....	....	2	‖77	2	81
Kingman	3	6	0	9	5	10	0	15
Labette	....	....	....	....	2	0	0	2
Lyon	1	0	0	1	1	0	0	1
Marion	3	0	0	3	2	3	0	5
McPherson	24	¶120	†9	153	29	**129	2	160
Morris	0	0	1	1	1	0	3	4
Neosho	....	....	....	....	1	1	0	2
Ness	1	0	0	1	....	....	....	....
Osage	1	0	0	1	1	0	0	1
Osborne	....	....	....	....	....	....	....	....
Phillips	....	....	....	....	1	0	0	1
Pratt	1	0	0	1	....	....	....	....
Reno	5	11	5	21	12	*35	0	47
Rice	6	†47	0	53	30	†92	2	124
Rooks	....	....	....	....	0	3	0	3
Rush	1	0	2	3	2	1	3	6
Russell	1	†4	0	5	11	‡50	0	61
Saline	2	0	0	2	....	....	....	....
Sedgwick	4	10	0	14	21	44	0	65
Scott	....	....	....	....	0	1	0	1
Stafford	0	3	0	3	3	8	0	11
Sumner	2	1	0	3	5	2	0	7
Trego	....	....	....	....	2	2	0	4
Wabaunsee	....	....	....	....	1	0	0	1
Woodson	10	16	0	26	12	17	0	29
Total	156	395	23	574	246	624	24	894
Deepened	....	46	2	....	5	60	....	113

*Four are old wells deepened. †One was an old well deepened. ‡Five are old wells deepened. §Two are old wells deepened. ¶Thirty-seven are old wells deepened. ‖Thirty-one are old wells deepened. **Fourteen are old wells deepened.

Portable Drilling Units Aid in Wildcat Tests

(Continued from Page 40)

mud only by the addition of a highly colloidal clay.

This is the first instance where a legislative or executive body concerned with the operation of drilling oil wells has specified not only the weight but also the viscosity of drilling muds to be used under their supervision.

In nearly all the wells drilled in this district, since the commission specified the type of drilling mud which must be used and in every case where the mud was prepared to the foregoing specifications Aquagel has been used and the gas or oil in the Chat horizon was protected from the drilling water and conserved for future use.

Artesian Salt Water Flow

A large part of this district is underlaid with artesian salt water which can be controlled in standard tool holes only by carrying the hole full of heavy mud during the drilling operation. The attendant difficulties of drilling with standard tools in a hole full of heavy mud has caused the use of the rotary system in some wells. When the artesian salt water is penetrated in a rotary hole, two sources of difficulty arise; first, the water stratum is likely to be rather porous and will allow the mud to be lost in it, unless properly walled off; second, salt water destroys the colloidal property of most drilling muds, which in turn renders the mud incapable of laying down a plastic wall and also causes the wall to slough upon contact with the salt water.

When Aquagel is mixed with fresh water to produce a drilling mud, only 4 or 5 per cent by weight is required to produce the desired viscosity. Aquagel can be mixed with salt water but the presence of salt in the resulting mud will destroy part of the colloids present.

Several of the rotary drilled wells in this area have prepared Aquagel muds from this artesian salt water and have been required to use about 30 per cent by weight of Aquagel. This produces a mud of the desired viscosity which weighs approximately 10 pounds per gallon. Such a mud will have sufficient colloidal qualities to wall up the hole properly and also will weigh enough to hold back this artesian flow.

Prevention of Sloughing and Suspension of Cuttings

Where most of the formations penetrated are red beds or chat with alternating layers of gypsum and salt, a very poor native mud results. It is the usual occurrence when using this type of native mud to be unable to return to bottom with new bits or to run casing completely to bottom. This is the result of the settling out of cuttings and of mud solids from an improper quality mud. This and many other drilling difficulties, such as an appreciable loss of circulation, sloughing and thickly deposited mud walls can be avoided by the use of a drilling mud complying with the weight and viscosity requirements listed in the report of the operators committee of the Ritz-Canton-Decker area.

Limestone Reservoir Is Favorable to Acid

(Continued from Page 56)

ment, 21 were new wells when treated the first time.

These figures show that the common practice in Kansas is to treat wells when they are completed and then to retreat them before the wells decline too far. Such a procedure should theoretically give the best results since the acid will tend to penetrate all the producing pays rather than follow one pay which has a lower rock pressure due to greater withdrawal of oil and gas. Even though proration prevents running any more oil, the treatment of new wells within a week or 10 days after put on production should enable the formation to give up more of its oil and give a greater ultimate recovery.

Many of the wildcats which have been drilled in Kansas have been treated immediately upon completion. Many pools have been opened in this manner and it is only reasonable to expect many more in the next few years. The treatment of wildcats frequently requires an entirely different procedure and technique than the treatment of a well producing in some already proven field because oftentimes wildcats are drilled into very hard and tight formations showing at the most only a few barrels of oil per day natural. As stated before in this paper, the purpose of acidizing is to enlarge the pores in the formation and to create new ones which will connect the hole with porous parts of the reservoir. It is obvious that before a well will produce oil, it must be drilled into a formation which already has sufficient porosity to hold oil and must be so constructed geologically that it can act as an oil reservoir. In treating wildcat wells it is often found that the treatment requires high pressures and long periods of time to force the acid back into the rock since the porosity of the formation is very low. Such wells are not apt to produce much oil since the formation is so dense that very little oil can be stored in it.

Acidizing will not create or make oil but, where there is oil present in sufficient quantities in the formation, acidizing when properly administered is a great advance in obtaining the maximum production per acre.

EDMONTON GAS FRANCHISE

EDMONTON, Alberta, Apr. 20.—Applications involving the renewal of the natural gas franchise of Northwestern Utilities, Ltd., for the city of Edmonton are before the Alberta legislature. The franchise expires in November, 1935. The company has applied for a 15-year extension with abolition of the clause providing a maximum rate of 50 cents per 1,000 feet and payment to the city of 5 per cent of net earnings instead of 5 per cent of gross earnings as heretofore. The city is seeking the right to collect 5 per cent on gross earnings after expiration of the existing franchise.

LONDON GAS FRANCHISE

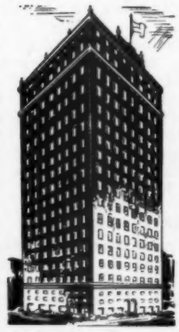
TORONTO, Ontario, Apr. 20.—The Ontario legislature has approved a bill authorizing the city of London to submit to the municipal electors the proposal to grant a natural gas franchise to the City Gas Co., a subsidiary of the Union Gas Co. of Canada, Ltd. The vote will be taken early in the summer. It is proposed to pipe natural gas to London from the Dawn Field.

Texas and California Report Largest Gains

With but one exception, the District of Columbia, every state in the United States showed a substantial increase in the gasoline consumed within its borders during 1934 compared with the previous year. These data are prepared by the A.P.I. from reported tax returns to states and the reports of the Bureau of Mines, the latter indicating a total increase in gasoline consumption for the country of 7.63 per cent. Total gasoline consumption jumped from 15,438,324,000 gallons in 1933 to 16,617,050,000 gallons in 1934, the division of the increase being fairly well distributed among all of the 49 areas except the District of Columbia as mentioned previously. Of these states Texas and Pennsylvania report the largest increases, each showing a gain in consumption of approximately 100,000,000 gallons. The detailed report of the A.P.I. follows:

GASOLINE CONSUMPTION BY STATES

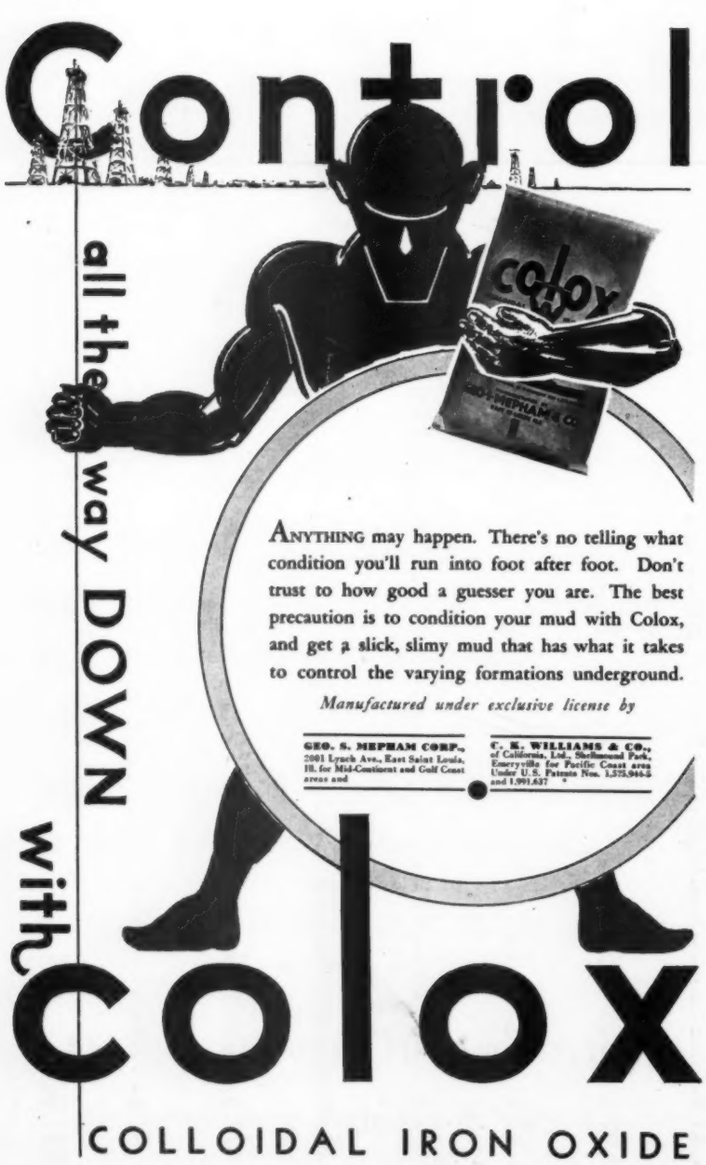
	Gallons	
	1934	1933
Alabama	155,047,000	133,885,000
Arizona	73,219,000	64,506,000
Arkansas	140,156,000	121,195,000
California	1,334,233,000	1,323,482,000
Colorado	182,756,000	159,917,000
Connecticut	256,225,000	248,126,000
Delaware	41,556,000	40,210,000
Dist. of Columbia	103,670,000	104,852,000
Florida	240,285,000	205,568,000
Georgia	239,499,000	210,575,000
Idaho	65,569,000	52,314,000
Illinois	1,025,918,000	970,986,000
Indiana	465,438,000	439,009,000
Iowa	403,801,000	355,568,000
Kansas	381,859,000	349,328,000
Kentucky	184,367,000	166,292,000
Louisiana	177,719,000	163,139,000
Maine	116,993,000	107,583,000
Maryland	206,177,000	191,010,000
Massachusetts	589,447,000	561,164,000
Michigan	781,971,000	740,297,000
Minnesota	431,545,000	401,723,000
Mississippi	131,263,000	115,637,000
Missouri	488,043,000	465,876,000
Montana	85,484,000	69,844,000
Nebraska	221,929,000	194,698,000
Nevada	23,412,000	20,629,000
New Hampshire	70,934,000	65,871,000
New Jersey	739,890,000	700,779,000
New Mexico	56,154,000	48,342,000
New York	1,577,019,000	1,541,989,000
North Carolina	280,454,000	241,416,000
North Dakota	102,958,000	99,725,000
Ohio	955,470,000	886,640,000
Oklahoma	301,120,000	275,100,000
Oregon	165,978,000	158,904,000
Pennsylvania	1,136,344,000	1,048,463,000
Rhode Island	108,876,000	100,202,000
South Carolina	132,347,000	111,940,000
South Dakota	109,514,000	100,340,000
Tennessee	212,037,000	185,164,000
Texas	874,990,000	774,413,000
Utah	65,258,000	54,705,000
Vermont	48,550,000	44,151,000
Virginia	259,103,000	233,439,000
Washington	260,623,000	236,690,000
West Virginia	147,139,000	129,082,000
Wisconsin	420,725,000	387,490,000
Wyoming	43,986,000	35,466,000
Total	16,617,050,000	15,438,324,000
Daily average	45,526,000	42,297,000
Change from previous year:		
Total change	1,178,726,000	.....
Pct. change in daily average	+7.63	.....



The ALLEN Building

Dallas

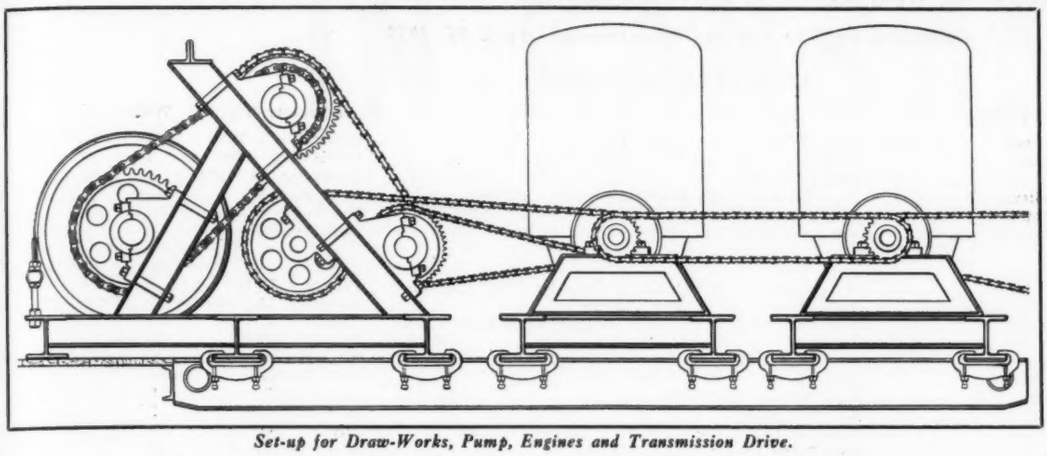
Preparations for the 1936 Texas Centennial have already begun to make Dallas a bright spot on the business map. Desirable office space is rapidly being absorbed by firms moving to Dallas to take advantage of the excellent business that will be created. If you would like to know more about Dallas and the Centennial, we will be glad to send you the very latest information, without obligation. Address your letter to Randall R. Wilson, 401 Allen Building, Dallas, Texas.


Control
all the way DOWN
with
Colox
COLLOIDAL IRON OXIDE
colox
ANYTHING may happen. There's no telling what condition you'll run into foot after foot. Don't trust to how good a guesser you are. The best precaution is to condition your mud with Colox, and get a slick, slimy mud that has what it takes to control the varying formations underground.
Manufactured under exclusive license by
GEO. S. MEPHAM CORP., 2001 Lynch Ave., East Saint Louis, Ill. for Mid-Continent and Gulf Coast areas and
C. K. WILLIAMS & CO., of California, Ltd., Richmond Park, Emeryville for Pacific Coast area Under U.S. Patents Nos. 1,575,944-5 and 1,991,637

Announcing

THE SHAFFER PORTABLE ROTARY DRILLING UNIT

Designed For Dual and Single—Gas—Gasoline or Diesel Engines



Set-up for Draw-Works, Pump, Engines and Transmission Drive.

FORWARD and REVERSE MULTIPLE ROLLER CHAIN DRIVE

All Drives, Including Draw-Works Employ Cut Steel Sprockets and Roller Chain

TRANSMISSION CAN BE APPLIED TO ANY TYPE DRAW-WORKS

Write for Descriptive Literature

THE SHAFFER SPECIALTY CO.

88X 136 WHITTIER STATION TULSA, OKLAHOMA 2440 EAST KING STREET

Roebling — *the custom-made wire for exacting welders*

ROEBLING Welding Wire is made by custom-methods . . . of steel produced *specifically* for welding purposes in Roebling's own open-hearth mill. It is absolutely uniform in quality and is free of non-metallic impurities.

We would welcome your request for further information, prices, or samples. Roebling Welding Wire is available in both gas and electric types.

JOHN A. ROEBLING'S SONS CO., TRENTON, N.J.

Branches in Principal Cities

Welding Wire Distributors for Oil Fields

FRICK-REID SUPPLY CORP.

Pittsburgh, Pa. Tulsa, Okla. Houston, Texas

ONLY A FINE PRODUCT MAY BEAR THE NAME ROEBLING

SERVICE ON NEW FIELDS

Ellsworth, Rice, Stafford, Barton and Rush Counties, Kansas

Compiled by The Oil and Gas Journal, April 25, 1935

LOCATION OF FIELD

County	Fields	Location	Discovery date	Wells
ELLSWORTH—	Breford	Secs. 7-17-10w and 12-17-11w	September 5, 1932	7
	Heiken	Secs. 23, 24, 25 and 26 in Twp. 17s-10w	October 15, 1930	4
	Lorraine	Sec. 13-17-9w	November 19, 1934	4
	Stoltenberg	Secs. 15, 16, 21, 22, 23 and 27 in Twp. 16s-10w	June 27, 1931	15
	Stratman	Secs. 1 and 12, 17-10w	March 27, 1931	19
	Wilkens	Secs. 18, 19 in Twp. 17-9w and 13 in Twp. 17-10w	April 16, 1934	3
				52
RICE—	Beyer	Sec. 16 and ½ of Sec. 21, in Twp. 19s-9w	February 7, 1931	8
	Brandenstein	Secs. 10 and 11 in Twp. 19-10w	November 25, 1933	2
	Chase	Secs. 31 and 32-19-9w and 5 E½ of Sec. 6-20-9w	December 4, 1932	54
	Genesee	Sec. 25-18-8w	May 28, 1934	4
	Genesee Townsite	Sec. 1-18-8w	November 27, 1934	0
	Grove	Secs. 20, S½ of 21 and 29 in Twp. 19s-9w	June 13, 1934	31
	Orth	Secs. 26 and 27-18-10w	July 9, 1932	5
	Ploog	Sec. 33-18s-9w	July 21, 1930	3
	Raymond	Secs. 16, 17, 20 and 21 in Twp. 20s-10w	July 29, 1931	34
	Sharpe	Secs. 7 and 18-20-9w and 13-20-10w	March 26, 1931	27
	Steckel	Sec. 31 in Twp. 19s-10w	September 1, 1933	3
				171
STAFFORD—	Gates	Sec. 27-21-13w	May 14, 1933	4
	Richardson	Secs. 31-22-11w, 36-22-12w, 6-23-11w, 1-23-12w	September 9, 1930	11
				15
BARTON—	Albert	Sec. 30-18-15w	February 9, 1934	1
	Beaver	Sec. 16-16-12	December 17, 1934	1
	Davidson	Sec. 4-16-11w	March 17, 1930	0
	Ellinwood	Secs. 4, 8, 9, 10 and 16 in Twp. 20s-11w	July 17, 1932	15
	Isern	Sec. 12-20s-11w	October 24, 1931	4
	Lanterman	Sec. 15-19s-11w	December 7, 1934	1
	Straub	Sec. 36-18s-11w	July 24, 1934	1
				23
RUSH—	Greenwalt	Sec. 17-19s-16w	August 5, 1931	0
	Otis	Sec. 10-18s-16w	July 18, 1934	1
		Total wells (28 pools)		262

Principal cities and towns.

Great Bend is the geographical center of this region and all of the oil fields listed above are easily reached by good paved or surfaced roads. The activity for the balance of 1935 will probably be largely in the western portion of Barton and the eastern portion of Rush Counties because of the strike in the Albert Pool, Section 30-18s-15w, early in February of this year. This is believed to indicate a new trend of oil fields through this region. Activity will continue in the pools located to the east, north and south of Great Bend in Barton, Ellsworth, Rice and Stafford Counties. This condition indicates that Great Bend will be a center for distribution of material during this summer and later in the year.

Chase in Rice County had a town lot drilling campaign in progress the early part of this year and many supply stores were located there to take care of this business. Among the supply houses located in Chase were Bovaird Supply Co., Bridgeport Machine Co., Frick-Reid Supply Co., International Supply Co., Jarecki Manufacturing Co., Mountain Iron & Supply Co. and National Supply Co.

At Ellinwood, eastern Barton County, is the headquarters for Continental Supply Co.

Great Bend is the headquarters for Phillips Petroleum Co., field office, also Atlantic Oil Producing Co. and Magnolia Petroleum Co. have had headquarters there for over a year. The Halliburton Oil Well Cementing Co. and Dowell, Inc., have service stations in Great Bend.

Railroads serving area.

Great Bend is on the main line of the Atchison, Topeka & Santa Fe Railroad and on a branch of the Missouri Pacific Railroad. Warehouse sites are available along the right of way of each railroad.

Highway system.

Highway 50, national, or 96, Kansas, an oil mat and graveled road passes through Great Bend running east and west and Kansas Route No. 8, also an oil mat and graveled road, passes through the city in a north and south direction. From these main highways surfaced roads lead to the oil fields of the area.

Air service.

There is a good modern airport, equipped with beacon and boundary lights, hangar, and landing field located near Great Bend. The airport is 1 mile north of the main street of the town.

Type of country.

Great Bend was so named because it is at the apex of a main northward bend in the Arkansas River and the city is located in the broad level valley of this stream. The land is good for farming and back from the river valley there are low hills.

Hotel accommodations.

There is one good hotel in Great Bend with two smaller ones and other accommodations are available for transients.

Domestic water supply.

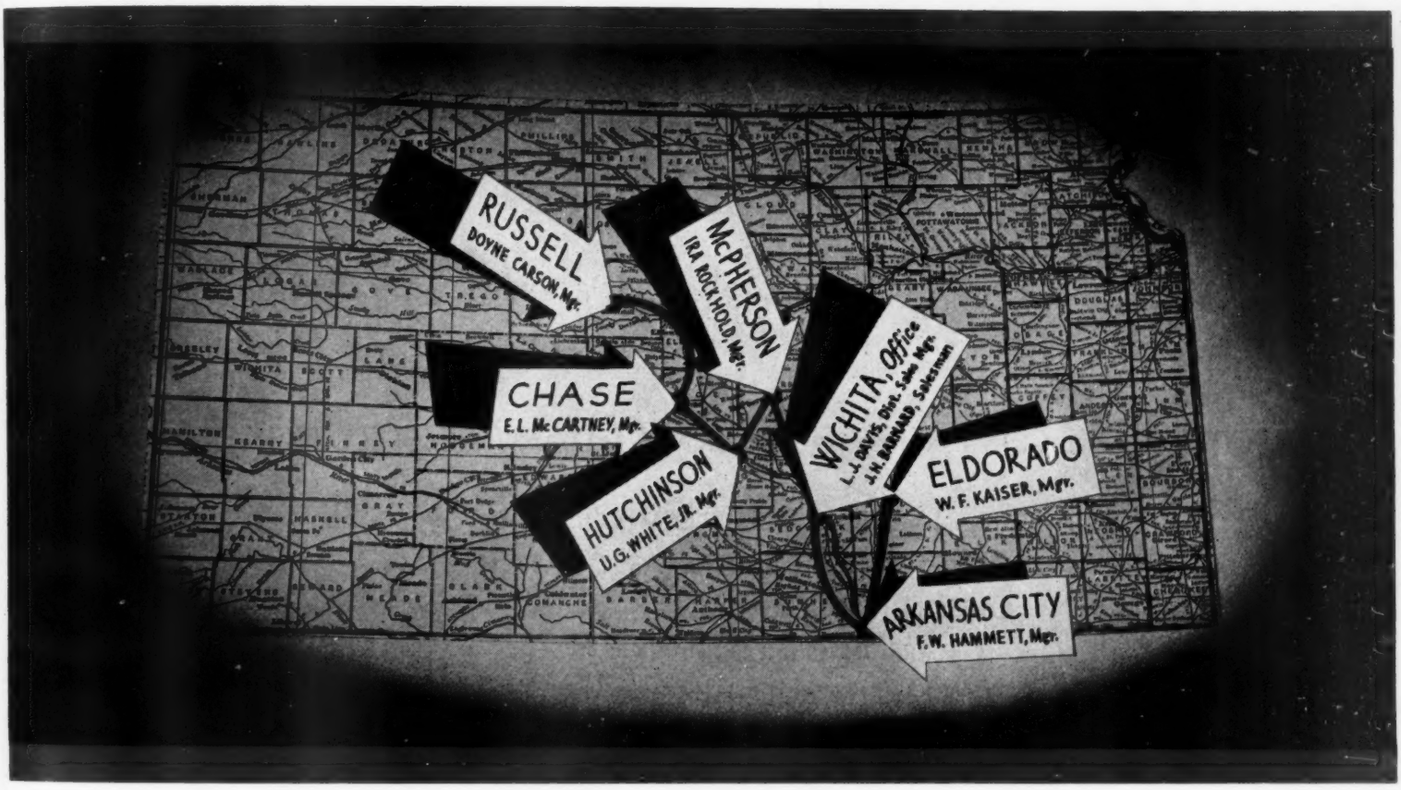
Domestic water for Great Bend is supplied by wells operated by the Kansas Power Co. The largest well can supply 1,000 gallons of water per minute. There are in addition eight other wells that regularly supply water with two held in reserve which can supply 500 gallons of water per minute.

Natural gas.

Natural gas for domestic and industrial purposes is distributed in Great Bend and vicinity by the Kansas Power &

(Continued on Next Page)

THE FRICK-REID TRAIL OF SUPPLY DISTRIBUTION IN KANSAS



Along the FRICK-REID TRAIL in Kansas the Oil and Gas Industry enjoys easy accessibility to a dependable and economical source of supply for equipment and materials.

FRICK-REID Stores are amply stocked to take care of regular or unusual demands and are adequately manned by capable, experienced supply men whose training and constant contact with recognized leaders in the development of improved equipment and methods used in drilling, producing and refining activities, places them in position to be of real help in the selection of correct equipment for the various problems to be met.

Not only in Kansas, but throughout the Mid-Continent, Gulf Coast and Eastern fields FRICK-REID facilities are maintained to efficiently serve the requirements of the Oil and Gas Industry.

J&L PIPE

J&L PIPE

FRICK-REID SUPPLY CORPORATION

PITTSBURGH, PA. TULSA, OKLA.

THE PETROLEUM BUILDING

ANNOUNCES THE LEASING OF SPACE TO THE CENTRAL DIVISION OFFICES OF THE AMERICAN PETROLEUM INDUSTRIES COMMITTEE

OTHER OIL COMPANIES NOW LOCATED IN THE BUILDING ARE:

AMERICAN-MEXICAN PETROLEUM CO.
BURNING OIL DISTRIBUTORS ASSOCIATION
CARSON PETROLEUM CO.
CIMARRON OIL COMPANY
DRAKE PETROLEUM COMPANY
NATIONAL FUEL OIL COMPANY
THE OIL AND GAS JOURNAL
PHOENIX CHEMICAL LABORATORY
REFINERS PETROLEUM CO.
SPENCER PETROLEUM CO.

HOME OF THE CHICAGO OIL MEN'S CLUB

ARTHUR RUBLOFF & CO.

AGENTS

616 MICHIGAN AVE.—SOUTH CHICAGO

SERVICE ON NEW FIELDS

Ellsworth, Rice, Stafford, Barton and Rush Counties, Kansas

(Continued from Preceding Page)

Light Co. which secures its supply from wells in Edwards and Rush Counties.

Electricity.

The Kansas Power Co. supplies electricity for power and domestic requirements for the community. The plant is located in Great Bend and is connected to other plants owned by this company so that ample current is assured at all times.

Schools and churches.

Great Bend is a well equipped educational center with a first class school system made up of five modern buildings that cost about $463,000 including the High School.

There are 12 religious organizations worshipping in their own buildings, most of them being modern.

Hospital.

One of the largest hospitals in central Kansas is located in Great Bend and it is fully accredited by the American College of Physicians and Surgeons.

General.

Within a radius of 30 miles of Great Bend there are about 265 wells now on production and many more drilling. Practically all of the activity in the region around Great Bend up to very recently has been east and north of the city. Following the discovery of oil in the Albert Field in Section 30-18s-15w, early in February, 1935, there has been a very active leasing campaign to the west and south of Great Bend until practically all of the land in this new trend of production has been leased in the western part of Barton County, and in the eastern portions of Rush and Pawnee Counties all adjoining. Barton County and also all of Edwards County south of Pawnee County.

There are many indications that this area will have a very active drilling campaign this summer and Great Bend will be the logical headquarters for oil company field offices and for supply company warehouses.

Housing facilities have been inadequate during the past few months due to the influx of oil men but this situation will soon be remedied as there have been over $60,000 worth of building permits taken out in Great Bend since the first of the year.

GEOLOGICAL DATA

Formations of Cretaceous age outcrop in this region which is known as the Barton Arch. These formations have a low regional dip to the northeast with the structures usually well defined on the surface.

Drilling has revealed the existence of a major fold trending in a northwest-southeast direction and the oil fields are located on the eastern and southern flanks of this major structure.

The formations that produce oil in this Barton Arch area are mostly of Pennsylvanian age and are of lime type. Depths of wells are about 3,300 feet to the Siliceous lime, the principal pay formation. Some oil has been found in strap sands at slightly shallower depths.

DEVELOPMENT

In October, 1929, Steinbuckle and others' No. 1 Schurr, in the NE SW Section 21-20-10w. opened what is now known as Raymond Pool, Rice County, and it is considered the discovery well of this region. It came in for 202 bbls. per day from a stray sand penetrated at 3,275-84 feet. This well was later sold to Slick, Pryor & Lockhart and they drilled it to the Siliceous lime at 3,304-08 feet and increased the rate of production to 860 bbls. daily. It was completed in the Siliceous lime in February, 1930. This well started activity in this area and at this time there are 34 producers in the Raymond Pool having a total daily potential of about 15,000 bbls. of oil. Five of these wells are rated at more than 1,200 bbls. daily potential with the largest capable of making 3,759 bbls.

Since this discovery in October, 1929, there have been 28 fields opened within a radius of 40 miles of Great Bend and these wells are all located along the east side of the Barton Arch general folding. Recent development is on the west side of Barton County and indicates the possibility of another trend or string of fields extending to the southwest.

Development in the area has been regulated largely by market demand and pipe line facilities which have been extended as conditions justified until the region is now served by three major pipe line systems, the Stanolind Pipe Line Co., Sinclair Prairie and the Standish Pipe Line Co., recently purchased by Phillips Petroleum Co.

Future activities.

During the period of active leasing in central and western Kansas in 1927, 1928 and 1929, and terminating with the peak of leased land in 1930 it is estimated that approximately 12,000,000 acres out of a total of 52,335,000 acres in the State was under oil and gas lease. This was about 23 per cent of the land leased at that time and the terms of the leases were mostly for 10-year periods. Following 1930 there was a tendency to reduce the money spend for yearly leases of land and about half of the acreage was allowed to lapse. At the low ebb of lease activity it is estimated that not more than 3,000,000 acres of Kansas land was under lease. The land retained under lease was the pick of the total acreage and selected for its relation to geophysical exploration.

In Kansas there has been a play of trends, usually from northeast to southwest, and with the opening of a new pool in Section 30-18-15w, known as the Albert Field in western Barton County in February of this year there was considerable additional leasing in the tier of counties to the west of Barton County. These counties are Rooks, Ellis, Rush, Pawnee, Edwards, Kiowa and Comanche. Rush and Pawnee Counties are adjacent to Barton on the west and can be reached conveniently from Great Bend. It therefore seems that there will be considerable activity there this year and this work will be directed and supplies secured from warehouses in Great Bend. More than a dozen wildcats are reported in these counties at this time and if more strikes are reported activities will increase proportionately.

DRILLING CONDITIONS

Drilling water.

Surface streams and shallow water wells furnish water for steam powered outfits. Some of this water is not suitable for boiler feed without treatment.

Boiler Fuel.

There is some natural gas available in this area for boiler fuel, but crude oil will be used mostly.

Drilling contracts.

Where companies have leases about to expire or are in a hurry to complete a test it is usual practice to contract for a small diameter hole to be drilled with a portable outfit that is powered by internal combustion engines. Using such outfits saves considerable cost and can be moved in and out of the location quickly. While the hole completed in the formation is usually not larger than 5 inches this is large enough to determine the character of the probable pay formation. If the well develops oil in commercial quantities the larger type cable tool or rotary rigs are moved in to complete offsets. Some

(Continued on Next Page)

SERVICE ON NEW FIELDS

Ellsworth, Rice, Stafford, Barton and Rush Counties, Kansas

(Continued from Preceding Page)

companies are doing their own drilling of leases for test purposes.

Drilling time.

With the portable outfits it is possible to complete a 4,000-foot test in about 50 days. With heavy rotary tools this time can be shortened considerably.

Type of drilling equipment.

Rotary outfits, cable tools and portable rotary units are all used to drill wells in this area. Cable tools are quite satisfactory where the character of the formations penetrated do not need to have the casing carried or much underreaming done. This area can be roughly outlined to include western Barton County and Rush County and north. Pawnee and Stafford Counties and the area to the south is drilled more satisfactorily with rotary outfits.

Electric power.

The Kansas Power Co. has a plant in Great Bend and is prepared to furnish electric power for drilling or pumping purposes in the region under consideration. The cost is favorable as compared with other types of power units.

Derricks.

Drilling derricks in this district are all of the 122-foot high steel type built for rotary or cable tool outfits. Where the portable units are used for drilling the 122-foot derrick is also used.

Casing.

The casing programs vary depending upon the type of outfit used. If the test is drilled with a portable rotary outfit the hole is started for 11-inch casing, then reduced to 8⅝ inches, or the surface string may be 8⅝-inch diameter and the balance of the hole 6-inch diameter and 5⅛-inch set above the producing formation.

If standard cable tools are used it is usual to start the hole 20-inch diameter then reduce for 15½-inch, 13⅜-inch, 10¾-inch, 8⅝-inch and finish with a 7-inch string above the pay. The 15½-inch, 13⅜-inch and 10¾-inch casing is pulled after the well is completed.

When the hole is drilled with standard rotary outfit and the well drilled in with cable tools a 20-inch hole is started and 15½-inch casing set, and 11-inch hole carried to the top of the pay where 8⅝-inch, 32-pound casing is set and cemented. Flow strings of 6⅝ or 5⅛-inch casing may be set after the well is drilled in.

Cementing casing.

With the cable tool operations the flow string is cemented. With rotary outfit the long string is cemented before drilling in and it is also quite essential to carefully cement the surface pipe below the unconsolidated surface formation.

Drill stem tests.

It is not usual practice to make drill stem tests in holes in this area. Careful sampling checks formations quite closely now that the stratigraphy is shown for this region. The "chat" does not core readily but it may contain either gas or water and the long string of casing is set below this formation and cemented. If gas is present the casing can be later gun perforated or ripped.

Straight hole drilling.

With rotary drilling it is usual practice to check the hole every 1,000 feet or less with acid bottle tests and to keep it straight. With the surface string carefully set and plumbed the straightness of the hole below is practically assured if the acid bottle tests are made regularly to ascertain that no change in stratigraphy from that accepted as usual for this region has been encountered.

PRODUCTION PRACTICE

General.

When production is found in the lime formations of this area it is usual practice to acidize and this materially increases the potential of the wells. When rotary outfits are used the rotary mud is swabbed out of the hole until the well will flow. There are several producing formations found in this region including the "Wilcox" sand and Arbuckle lime. "Chat" and the "Misener" sand also produces oil in some wells.

Proration practice.

The wells are tested by swabbing when completed. It is then usual practice to run tubing either 2½ or 3-inch diameter and put the well on the pump. Wells that have from 100 to 200 bbls. per day capacity are permitted to produce for four days; wells making from 200 to 300 bbls. are permitted three days' test; 300 to 400-bbl. wells, two days and wells capable of making 500 bbls. or more are allowed one-day test. By this method it is believed that each type of well is tested long enough to permit it to settle down to full natural flow conditions.

Character of oil.

The gravity of oil in this district ranges from 36 to 46 degrees A.P.I. and most of it contains some sulphur and hydrogen sulphide, especially production from the lime.

Separators and tanks.

Each well is either oil and gas separator or with gun barrel flow tank in which oil and water is separated. The tank batteries are usually made up of 500-bbl. tanks. There are a good many tanks used in this area because of hydrogen sulphide corrosion of steel tanks. Where wooden tanks are provide it is usual practice to house the treating tanks to conserve heat used in separating oil and water.

Pumping practice.

Wells usually are put on the pump soon after completion because of relatively low formation pressures and lack of large volumes of gas accompanying the oil. The pumping outfits may be of the beam type operated by gas engines or electric motors or of the pumping unit type powered with electric motors. Rods and plunger type working barrels are used extensively although some wells are equipped with fluid packed pumps.

GENERAL CONDITIONS

Principal operators.

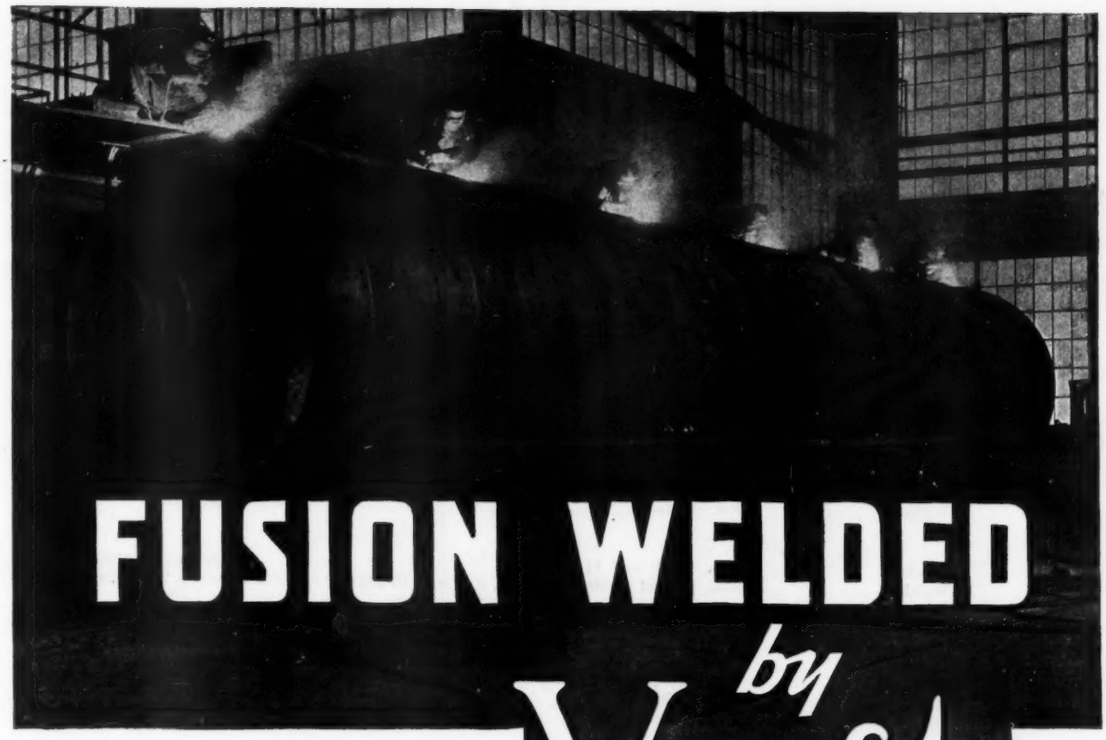
Some of the companies operating in this territory are Magnolia Petroleum Co.; Slick, Pryor & Lockhart; Empire Gas & Fuel Co.; Gypsy Oil Co.; Marathon Oil Co.; Ramsey Petroleum Co.; Stanolind Oil & Gas Co.; Continental Oil Co.; Phillips Petroleum Co.; Sinclair Prairie Oil & Gas Co.; Texas Co.; Derby Oil Co.; Shell Petroleum Co.; Atlantic Oil Producing Co.; Lario Oil & Gas Co.; Slick-Urschel; Vickers Oil Co., and Rose Spring Drilling Co.

Character of leases.

The majority of the leases are for 10 years without any drilling obligations but carrying a straight rental clause.

Salt water.

Water accompanies the oil in both "Wilcox" and lime wells both as bottom and edge water and run in total solids from 27,000 to 140,000 parts per million. Chlorine content is high.



FUSION WELDED by Vogt IS YOUR PROTECTION

KENTUCKY DERBY FESTIVAL Louisville APRIL IN MAY

BE SAFE! . . . BE SURE!
GET A GOOD WELD!

Sound welds can only be made by qualified welders of long experience backed by testing laboratory and X-ray equipment.

SAFETY FIRST . . . specify "FUSION WELDED by VOGT"

WRITE FOR BULLETIN W-1

Manufacturers of: Welded Plate Equipment, Water Tube Boilers, Drop Forged Steel Valves and Fittings, Oil Refinery Equipment, Ice Making and Refrigerating Machinery, Heat Exchangers.

HENRY VOGT MACHINE CO.
INCORPORATED
LOUISVILLE, KENTUCKY

NEW YORK • CHICAGO • PHILADELPHIA • CLEVELAND • CINCINNATI • DALLAS • KANSAS CITY

PRESSURE VESSELS for the REFINERY, CHEMICAL and POWER PLANT

SERVICE ON NEW FIELDS

McPherson, Harvey, Rice, Reno and Kingman Counties, Kansas

Compiled by The Oil and Gas Journal, April 25, 1935

County	Fields	LOCATION OF FIELD — Location	Discovery date	Wells
McPHERSON—	McPherson	Secs. 19, 29, 30, 31, 32-18s-2w, Sec. 6-19s-2w	March 23, 1928	13
	Nikkel	Secs. 33 and 34-21s-3w, 4 and 5-22s-3w	October 9, 1932	52
	Ritz	Secs. 16 to 21 inc., also Secs. 28 to 32 inc. in Twp. 19s-1w. Sec. 2 and 9 to 15 inc., also Sec. 22 to 27 inc. and Secs. 35 and 36 all in 19s-2w. Secs. 6, 7, 8 and 9-20s-1w. Secs. 1, 2 and 12, 20s-2w	June 28, 1929	273
	Voshell	Secs. 27, 28, 33 and 34-20s-3w. Secs. 3, 4, 9, 10, 15, 16. Secs. 21, 22 and N½ of 28 all in Twp. 21s-3w	August 29, 1929	121
	Chindberg	Sec. 7-19s-2w and Secs. 13 and 24 in Twp. 19s-3w	September 14, 1932	0
	Graber	Sec. 29, 32-21s-1w	May 26, 1934	4
	Johnson	Sec. 35-19s-3w and Sec. 2 and 11, in Twp. 20s-3w	February 4, 1932	32
				482
HARVEY—	Halstead	Secs. 35 and 36-22s-2w and 11-23s-2w	April 5, 1929	2
	Hesston	Secs. 5 and 8-22s-1w	September 1, 1934	2
	Hollow	Secs. 7, 8, 17, 18, 19, 20 and 30 in Twp. 22s-3w	December 17, 1931	98
	Sperling	Sec. 23-22s-2w	December 30, 1934	1
	Walton	Sec. 4-23s-2e	June, 1919	1
				104
RICE—	Thode	Secs. 3, 10 and 11-21s-7w	September 1, 1933	3
	Welch	Secs. 34 and 35-20s-6w and 2, 3, 4 and 10-21s-6w	January 28, 1924	28
				31
RENO—	Abbeyville	Secs. 24 and 25-24-8w	January 1, 1927	3
	Burrton	Secs. 18, 19 and 30-23-3w, 1, 2, 11, 12, 13, 14, 23, 24, 25, 26, 27, 34, 35 and 36, in Twp. 23s-4w, 2-24-4w	February 16, 1931	55
	Hilger	Sec. 16-26-4w	March 31, 1934	2
	Stone	Sec. 15-24-4w	September 5, 1934	3
				63
KINGMAN—	Cunningham	Sec. 19, 20, 29 and 30 in Twp. 27s-10w	January 3, 1931	25
		Total wells (19 pools)		715

Principal cities and towns.

Adjacent to Hutchinson, Reno County, Kansas, are McPherson, McPherson County; Lyons, Rice County; Chase, Rice County; Burrton, Harvey County; Cunningham, Kingman County; Stafford, Stafford County, and Medora, Reno County, and several smaller villages.

Branch supply stores.

The following companies maintain branch stores in Hutchinson: Bovaird Supply Co., Continental Supply Co., Drillers Supply Co., Farley Machine Works, Frick-Reid Supply Co., Halliburton Oil Well Cementing Co., Hughes Tool Co., Hutchinson Foundry & Steel Co., International Supply Co., Lucey Products, Inc., National Supply Co., Oil Well Supply Co., Republic Supply Co., William Brothers Oil Well Treating Co. Companies maintaining salesmen in this district: Black, Sivalls & Bryson, Inc., Joe Beggs; Bridgeport Machine Co., W. R. Geddes; Jarecki Manufacturing Co., H. R. Carpenter. Drilling companies: Braden & McClure Drilling Co., R. E. Garden & Sons Drilling Co., Hipple Oil Co., McPherson Drilling Co., Olson Drilling Co., Rose-Spring Drilling Co., Southern-Thurman Drilling Co., Study & Frost Drilling Co., Youkner Drilling Co.

Railroads serving area.

Hutchinson is on the main line of the Santa Fe System, Missouri Pacific Lines, Rock Island Railroad and the Arkansas Valley Interurban Railroad, an electric road from Wichita and Newton, also Hutchinson Southern, a branch of the Santa Fe system to Blackwell, Okla.

Highways.

Federal Highway 50-S extends through Hutchinson and the State from east to west and is a surfaced roadway. Kansas route No. 17 runs north and south through Hutchinson connecting to the north with Federal Highway No. 81 at McPherson and Federal Highway No. 54 to the south. This road is surfaced of the bituminous mat type and paved and graveled. Kansas Route No. 96 enters Kansas at Columbus, and crosses the State diagonally passing through Hutchinson and connecting with Federal Highway 50 at Lyons and continuing west from there as Kansas Route No. 96 from Great Bend to Scott City, Kans.

Aerial service.

Hutchinson airport has a Federal air rating and is located 3½ miles east of the city on Federal Highway No. 50-S. The altitude is 1,517 feet above sea level. The field is approximately 160 acres and is sodded and level. The entire field is available for take off and landings. There is a pole line to the south properly marked for night and day landings. The hangar is in the southwest corner of the field. The lighting system consists of beacon, boundary and landing flood light. Service from 6:30 a.m. to 9:30 p.m. Twenty-four hour service on planes.

Character of country.

The country around Hutchinson is very level and the land sandy, formerly of the prairie type. Wheat farms now produce about one-eighth of the hard wheat crop of the world, wheat being the principal farm product.

Hotels.

Hutchinson has six first class hotels, also good rooms may be had at private homes.

Domestic water supply.

The United Power & Light Co. supplies the city water from seven wells ranging in depth from 65 to 80 feet. The water is pumped directly from wells to city mains. The system has a capacity of 11,520,000 gallons per day.

Electricity and gas.

The United Power & Light Co. also supplies electricity and the Wichison Industrial Gas Co. supplies industrial plants and small towns adjacent to Hutchinson with natural gas. The Hutchinson Gas Co. supplies gas for local consumption. This company is a subsidiary of the Cities Service Gas Co.

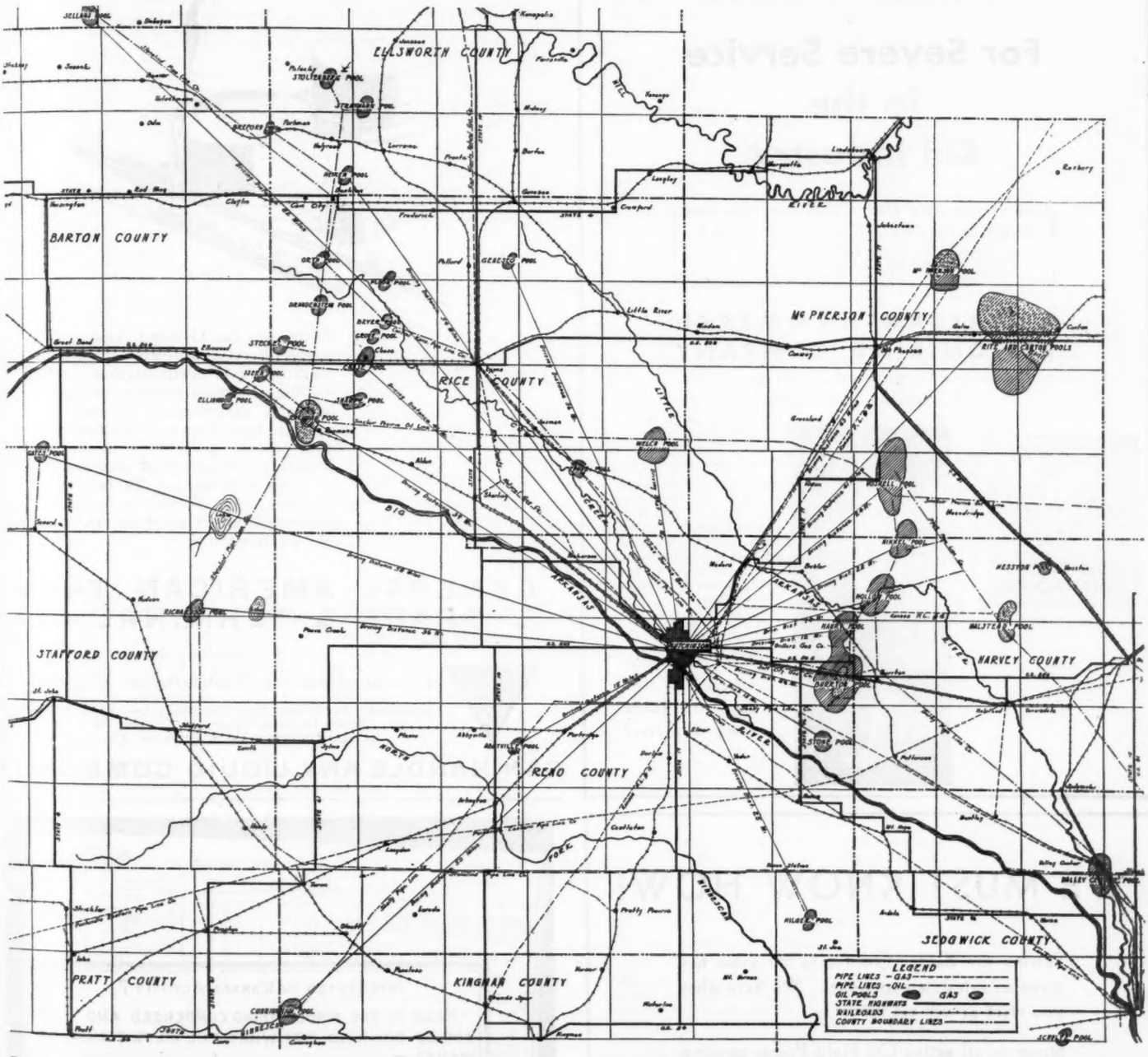
Schools and churches.

Hutchinson's school system includes a junior college, senior high school, two junior high schools and 10 grade schools with total enrollment of more than 6,000 and an annual budget of almost $500,000. In addition there is a Catholic parochial school; Bresee College conducted by the Nazarene Church; the Salt City Business College and a well developed public library.

There are 29 churches representing all denominations usually found in a mid-western city. There is also a well-equipped Y.M.C.A. in its own building.

(Continued on Next Page)

HUTCHINSON
the
Oil and Gas Center



Located in the center of this vast oil and gas producing area, Hutchinson is rapidly becoming recognized as the ideal location for supply company branches, manufacturing company representatives, and field headquarters for drilling contractors, acid treating companies and oil companies.

For copies of this map and further information, write

CHAMBER OF COMMERCE
HUTCHINSON, KANS.

American Hammered PISTON RINGS

For Severe Service in the Oil Industry

See Our Exhibit

NATIONAL OIL & GAS POWER DIVISION A. S. M. E.
Hotel Mayo, Tulsa, Okla.
May 8th to 11th, 1935

AMERICAN HAMMERED PISTON RING COMPANY

Division of The Bartlett Hayward Company
BALTIMORE, MARYLAND

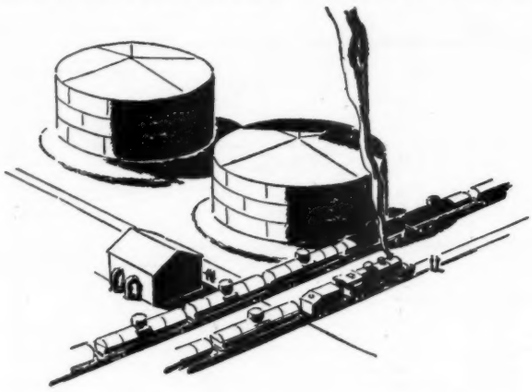
IN EVERY SIZE
OF EVERY TYPE
FOR EVERY PURPOSE

BRANCH OFFICES:
Chicago, Ill. 1346 Washington Blvd.
Fort Worth, Texas 2603 Azle Ave.
Houston, Texas 4605 Polk Ave.
Long Beach, Calif. 501 Pico St.
San Francisco, Calif. 320 Market St.
Pittsburgh, Pa. 5668 Darlington Rd.
Seminole, Oklahoma 107 First St.
Tulsa, Oklahoma 404 E. Second St.
Winfield, Kans.

Write for the new edition of the Engineer's Hand Book. It's free!

YOUR OWN TERMINAL

without investing a single penny



When you use General American terminals, you acquire your own facilities for accumulation and loading of export cargoes, unloading and distribution of import cargoes, barreling and drumming. You obtain your own modern facilities to handle your shipments . . . all without any investment on your part. Write for new 24 page book about General American Terminals.

GENERAL AMERICAN TANK STORAGE & TERMINAL CO.

A Subsidiary of
General American Transportation Corporation

Terminals: Goodhope, La., Westwego, La., Corpus Christi, Texas, Houston, Texas and Carteret, N. J.
General Office: 230 S. Clark St., Chicago.

CAN HANDLE ANY LIQUID COMMODITY

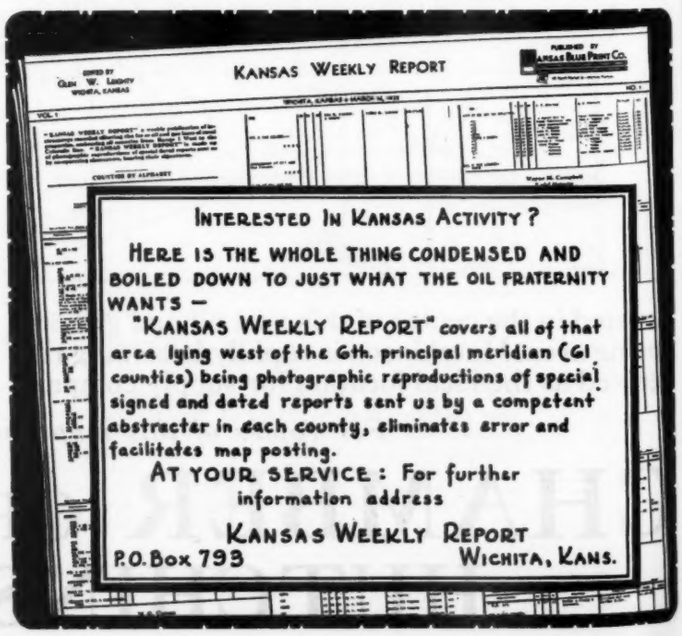
WE MUST KNOW HOW!

Serving the Kansas Oil Fields 20 years has given us valuable experience. We have what you want or will get it.

Stores in all active Oil Field Points carrying complete stocks for your requirements in our line.

THE HOUSTON-DOUGHTY LUMBER COMPANY

Night Phone 3-4657 — WICHITA, KANSAS 820 Beacon Building — Dial 2-1032 L. D. 170


KANSAS WEEKLY REPORT
INTERESTED IN KANSAS ACTIVITY?
HERE IS THE WHOLE THING CONDENSED AND BOILED DOWN TO JUST WHAT THE OIL FRATERNITY WANTS —
"KANSAS WEEKLY REPORT" covers all of that area lying west of the 6th. principal meridian (61 counties) being photographic reproductions of special signed and dated reports sent us by a competent abstracter in each county, eliminates error and facilitates map posting.
AT YOUR SERVICE: For further information address
KANSAS WEEKLY REPORT
P.O. Box 793
WICHITA, KANS.

SERVICE ON NEW FIELDS

McPherson, Harvey, Rice, Reno and Kingman Counties, Kansas

(Continued from Preceding Page)

Recreational.

Hutchinson supports a team in the Western Baseball Association known as the "Larks."

Carey Municipal Park is located along the banks of the Arkansas River and with Hutchinson's three other public parks the city has a total of 225 acres. In Carey Municipal Park there is a public golf course, baseball grounds, dance pavilion, lagoon, boats and picnic grounds. Carey Municipal Park was given to the city by the late Emerson Carey in memory of his wife, Edith Carey.

General.

Hutchinson, Kans., was settled in 1871 and its streets are wide, well shaded and paved. The city now has a population of about 30,000 and is the headquarters of three large salt plants with mines, shipping about 15,000 carloads of salt annually.

GEOLOGICAL DATA

Because the surface of the area under consideration is covered with a deposit of Quaternary loess, sand and alluvium, geological mapping of structures from the surface outcrops has been difficult, and the discovery of oil fields has been brought about by an intensive core drilling campaign that was carried on by several of the major oil companies prior to 1926.

The marker used in this core drilling is the Harrington limestone of Permian age found at depths varying from 500 to 700 feet.

This area was opened by the completion of a gas well near McPherson in 1926, where gas was found at the top of the Mississippi limestone at a depth of 2,915 feet. This discovery was followed by several other wells being drilled in 1927 and early in 1928. In June, 1928, the first oil well was brought in rated at 500 bbls. daily capacity.

Following the discovery of oil in the Russell County well drilled by M. M. Valerius & Co. in 1923 there was considerable activity in the area between that well and the older fields farther east in Kansas, and in 1924 the Welch Pool was opened in southeastern Rice County, finding production in chert at a depth of from 3,352 to 4,404 feet.

This chert, which is one of the producing formations in this area, is the residue of weathered limestone and is known to the driller as "chat." At the type locality the Welch chert consists of residual weathered chert and geest, or weathered rock in place, of which at least the upper part was stratified by the Pennsylvanian sea. It is underlain by Mississippian limestone in place. The Welch chert is therefore correlative with the Pennsylvanian basal conglomerate and perhaps the term "Welch conglomerate" would be more descriptive to apply to the entire extent of this formation.

Following the Welch Pool discovery of 1924 oil was discovered in a well drilled in Section 16, Township 27s, Range 7w, Kingman County, on January 25, 1926, by Port Fleeger and later acquired by Carter Oil Co., and with the McPherson gas discovery later in that year a very active lease play started over the entire west central region. The Abbeyville Pool in Reno County was discovered on January 1, 1927.

The producing horizons in this region, in addition to the two mentioned above are Viola lime, Wilcox sand and Arbuckle Siliceous lime, all of Ordovician age.

The producing formations are found at depths varying from 3,000 to 3,650 feet. The initial capacity of the wells ranges from a few barrels to 5,000 to 6,000 bbls. per day.

DEVELOPMENT

Discovery of fields.

In the table at the beginning of this service report the date of discovery of the various fields is given. Watson Field is reported discovered in 1919, but it is at the eastern edge of Harvey County and might properly be classed with the west side of Nemaha Granite Ridge Pools. One pool was found in 1924, no oil fields in 1925 or 1926. One in 1927, one in 1928, three in 1929, none in 1930. Following the slowing up of drilling in 1930, during which year no new fields were opened, three fields were discovered in 1931, three in 1932, one in 1933 and five in 1934. These figures relate only to those pools listed in the table.

Future activity.

In an area of more than 3,000 square miles there are about 700 producing wells in 20 fields. The land is largely covered with leases, many taken for 10-year period in 1927, 1928 and 1929, and therefore now have a short time to run. This condition, together with the wildcatting activity now under way and probable new discoveries, indicate that this region around Hutchinson will receive a lot of attention this year and in all probabilities for several years to come.

DRILLING CONDITIONS

The early wells in this area were drilled with cable tool outfits. Now about 60 per cent are drilled with rotary to the top of the "Chat" or to the top of the Simpson limestone and drilled in with cable tools.

The chief advantage of rotary drilling is considered to be the better facilities afforded to drill through the "chat" where heavy gas volumes and high pressures are encountered. In the Kinderhook shale below the "chat" where oil is encountered the cable tools are used because the weight of the mud fluid column would be in excess of formation pressures and the productive zones might be mudded off.

The common practice is to plumb the drill pipe while spudding, to then carefully cement the surface pipe below the unconsolidated sand of the McPherson. In drilling below the surface string it is usual practice to check the verticality of the well with acid bottle tests at least every 1,000 feet. Rotary samples are taken at frequent intervals below 2,000 feet. The use of heavy 9-inch long drill collars in some operations appears to speed the drilling and to assist in keeping the hole straight. With regular rock bits the sticky shale balled-up on the cones and caused slower drilling than experienced in drilling the limestones. This difficulty was overcome by lowering the position of the jet in the rotary drill body so that the stream of fluid washed the cones better.

Coring in the "chat" has not been very successful. No drill stem tests have been conducted although in case a large gas volume this would have been of advantage if it was done in "chat," also if water is encountered in this formation the core gives data of advantage in casing it off.

It requires an average of 40 days to rig up rotary, standardize and drill in a well in this area. Some wells have taken longer because it has been necessary to re-cement the surface pipe, fish for slips, drill pipe and other obstructions in the hole, and plug back hole that deviated too much from the vertical. The completed wells equipped with pumping machinery cost about $50,000.

CASING PROGRAM—CABLE TOOLS

Hole dia.—	Pipe (in.)	Weight (lbs.)	Depth (ft.)	Horizon	Remarks
	20	90	125		Drive pipe
18-in.	15½	70	700		Formation shut off
15-in.	13⅜	54½	1,550		Formation shut off
12-in.	10¾	45½	2,365		Under ream from top of Douglas group
10-in.	8⅝	32	2,950	"Chat"	Cemented
8-in.	7	24	3,230	"Misener" sand or Simpson limestone	Formation shut off, or cemented
6-in.	Open hole		3,330	Arbuckle limestone	
5-in.	Open hole		3,340		Total depth

CASING PROGRAM—ROTARY DRILLING

20-in.	15½	70	170	Wellington shale	Surface pipe, cemented to surface
11-in.	8⅝	32	3,230	Simpson limestone	Cemented and standardized
8-in.	Open hole		3,270	"Wilcox"	
6-in.			3,330	Arbuckle	
5-in.			3,340		Total depth

PUMPING EQUIPMENT

Because of the relatively low formation pressures it is usual practice to complete the rotary drilled wells by swabbing the mud out of the hole. If the production is coming from a lime formation the usual practice now is to run the string of 2½ or 3-inch tubing and acidize through the tubing, then swab the dead oil out of the tubing and put the well on the pump.

Pumping units are of various types, some being made up of steel rig fronts, jack shaft clutch, reversible belt drive, and band wheel with rotary, detachable counterbalances. Both electric motors and gas engines are used to furnish power for these units.

Some wells are equipped with pumping units powered with electric motors.

Both 2½ and 3-inch tubing strings are used and they are run to the bottom of the hole and equipped with plunger-type working barrels or with fluid packed pumps.

The gravity of the oil is about 42.5 degrees A.P.I. and the oil from the limestone formations contains some hydrogen sulphide.

SERVICE ON NEW FIELDS

Russell County and Western Kansas

Compiled by The Oil and Gas Journal, April 25, 1935

LOCATION OF FIELD

County	Field	Location	Discovery date	Wells
RUSSELL—	Dillner	Secs. 35 and 36-13s-15w	May 5, 1930	2
	Fairport	S½ Secs. 29 and 32-11-15w, Secs. 5, 7, 8, 17, 18, N½ 19, N½ 20-12-15w	Nov. 24, 1923	
	North Fairport	Secs. 9, 16, 20 and N½ 29-11-15w	June 14, 1928	140
	South Fairport	Secs. 30 and 31-12-15w, Secs. 25 and 26-12-16w, Secs. 6 and 7-13-15w, Sec. 1-13-16w	Mar. 15, 1926	
	Fink	Sec. 16-14-14w	October 17, 1934	1
	Gideon	Sec. 8-15-14w	June 8, 1930	
	Gorham	Secs. 32 and 33-13-15w, Secs. 4, 5, 8 and 9-14s-15w	October 15, 1926	45
	Hall	Secs. 30 and 31-14-13w	May 12, 1931	3
	Niedenthal	Secs. 13 and 23-14-15w	August 28, 1934	4
	Ochs	Secs. 13, 23, 24 and 26-15s-14w	October 14, 1929	10
	Russell	Secs. 21, 22, 27 and 28-13s-14w	February 12, 1934	21
	Sellens	Secs. 23, 25, 26, 27, 28 and 36-15s-13w	June 20, 1929	14
	Donovan	Twp. 15s-15w	January, 1935	1
	Gurney	Twp. 14s-14w	February, 1935	1
	Sullivan	Twp. 14s-15w	March, 1935	1
	Freed	Sec. 34-13e-14w		1
				244
ELLIS—	Hadley	Sec. 20-11s-17w	Aug. 6, 1929	12
	Shutts	Sec. 32-11s-17w, Secs. 5, 6, 7, 18, 19 and 20-12s-17w	Nov. 8, 1928	
	Yocemento	Sec. 9-13s-19w	June 17, 1929	1
				13
ROOKS—	Dopita	Sec. 31-8s-19w	April 20, 1934	1
	Laton	Secs. 11 and 14-9-16w	July 5, 1927	3
	Webster	Secs. 15 and 21-8s-19w	October 1, 1930	1
	Hoskins	Sec. 34-9s-16w		1
				6
TREGO—	Wakeeney	Secs. 11 and 14-11s-23w	May 15, 1934	3
	Rega	Sec. 20-13s-21w	May 19, 1929	1
				4
		Total wells (25 pools)		267

Principal towns near fields.

Most of the supply companies and operators are located in Russell, the county seat. Gorham, located 8 miles west of Russell, is in the heart of the Gorham Pool, and for that reason much of the business connected with oil field activities is transacted at this point. The town of Gorham has good hotel facilities and many of the men connected with the oil industry live there.

The following supply companies are located in Russell: Atlas Supply Co., Bovaird Supply Co., Bridgeport Machine Co., Continental Supply Co., Conway-Owen-Neylon Co., Farley Machine Co., Frick-Reid Supply Corp., General Machine & Tool Co., Houston-Doughty Lumber Co., A. C. Houston Lumber Co., Howe Electric Co., Jarecki Manufacturing Co., Keith, Wilie Rig Co., J. W. Metz Lumber Co., Mid-Continent Chemical Co., Lee C. Moore & Co., Inc., Mountain Iron & Supply Co., National Supply Co., Dowell, Inc., Oil Well Supply Co., Russell Boiler & Welding Works, Republic Supply Co.

In addition to the above named firms who are serving oil development in this area, Russell has gradually developed into a headquarters town for all oil activity in northwest Kansas. All manner of experienced oil field laborers, such as drillers, tool dressers, casers, tankers, pipe line men, electricians, welders and roustabouts, are available in Russell. There are also several engineers, geologists and producers whose headquarters are here.

Railway service.

The main line of the Kansas division of the Union Pacific runs through the center of the county from east to west, and a branch line of the same road runs through the north half of the county. Most freight shipments are handled at Russell.

Roads.

U. S. 40-South runs through Russell County east and west, and has paved and oil mat surface all the way. Kansas State Highway No. 8 runs north and south through the county and is a well sanded standard grade highway. These two highways cross at Russell.

Sites for supply houses.

Ample sites are available along the two highways and near the railroad. About 20 of the principal supply houses and oil-field lumber supply companies now have branches located in Russell, as well as a number of high class machine shops.

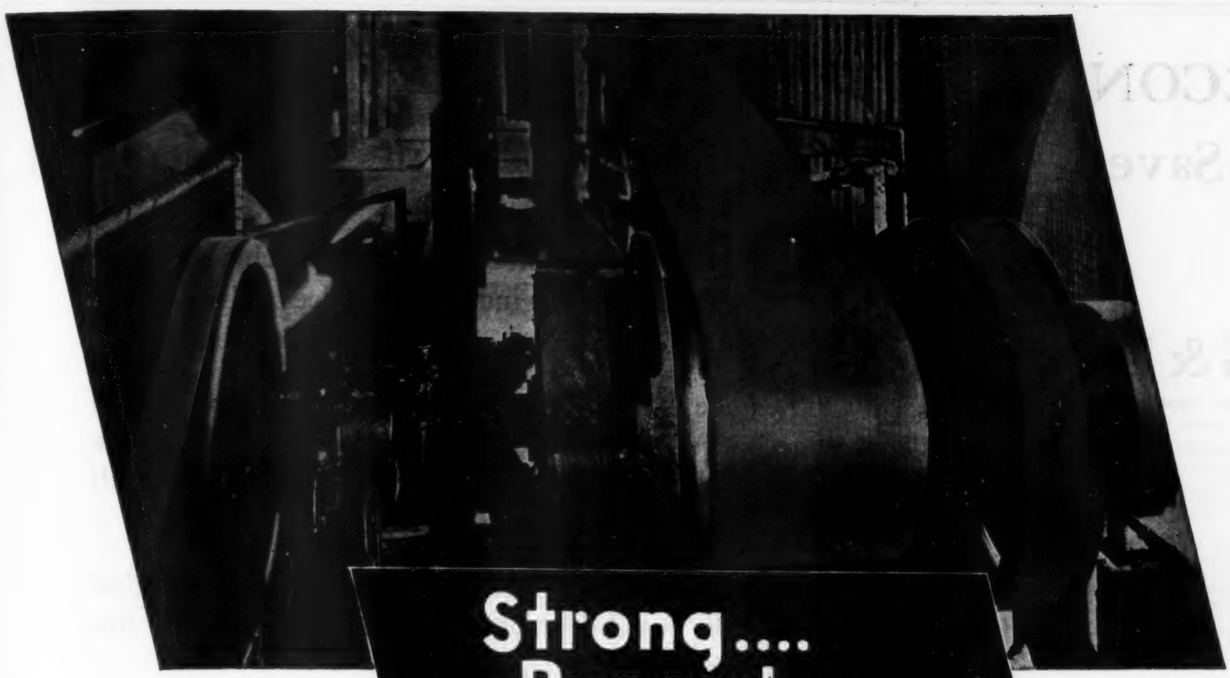
Churches and schools.

Methodist, Congregational, Lutheran, United Brethren and Catholic churches in Russell. Fine, modern high school, junior high and two good grade schools at Russell, and also good public school and parochial school at Gorham.

Water, light, power and gas.

Russell owns and operates one of the most modern and efficient water and light plants in this section of Kansas. Light and power rates are much lower than in the average Kansas town, either large or small. Good water is available in all parts of Russell County. Russell has recently authorized a water extension program, including filtration and softening plant that will cost $120,000. Several extensions to the sewer system are in progress at this time. Gas is piped to all parts of the city and is furnished at low rates.

(Continued on Next Page)



Strong.... Rugged.... Flexible *for* Oil Pumping Service

Thermoid Oil Country Transmission Belting delivers maximum power with minimum slippage. It offers a long life of service at little cost. It insures the type of performance that definitely increases production and cuts costs.

That's because Thermoid Oil Country Transmission Belting—like all other Thermoid products—is *built for the job,* built with a thorough knowledge of that job's requirements. Its construction actually embodies the practical ideas of oil operators themselves. It is made of the best materials by men who take pride in the products they make.

OIL WELL SUPPLY COMPANY

Branch Stores in all Oil Fields

DISTRIBUTORS OF

Thermoid

PRODUCTS FOR THE OIL INDUSTRY

Drilling and Pumping Transmission Belts — Brake Lining
Rotary Hose—Air, Steam, Welding and Refinery Hose—Packings

The ECONOMY of PURCHASED ELECTRIC Power

Time Saved • Convenience • Engineering Counsel

K G & E

Is now supplying electric service to these pools:

EL DORADO	HOLLOW
POTWIN	NIKKEL
ELBING	BURRTON
PEABODY	GRABER
FLORENCE	HESSTON
LEON	HALSTEAD
AUGUSTA	GREENWICH
CHURCHILL	VALLEY CENTER
RAINBOW BEND	ROBBINS
OXFORD	EASTBORO
SCHULTE	GOODRICH

Service also available in many other pools.

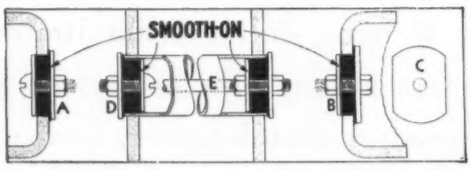
ALONG with the electric power purchased, there are available engineering services which make for the most efficient use of the energy supplied.

Service is made convenient and reliable by reason of an operating personnel who know from experience how to meet the exacting power requirements of all branches of the petroleum industry.

Our industrial power department is always glad to discuss possibility of extending service into unproven areas.

KANSAS GAS AND ELECTRIC COMPANY

GENERAL OFFICES: WICHITA, KANSAS



Efficient sealing plugs that are easy to make

PLUGS made with Smooth-On No. 1 and applied as shown are *perfect* closures for small circular openings, for abandoned connections or for blanking out split or punctured tubes. Only plain washers with a bolt or machine screw and nut are required to squeeze the Smooth-On into tight contact, and in most instances the plug can be pre-assembled complete. Shoving into place and tightening the nut completes the job in two minutes. *The seal is permanent* because expansion of the Smooth-On in hardening makes the plug and its seat virtually one solid piece. The projecting threaded bolt end may be hacked off if objectionable.

Smooth-On No. 1 is ideal for making dozens of equally dependable emergency and routine repairs—in all instances with a saving of time, labor and expense that can be obtained in no other way.

SMOOTH-ON Mfg. Co., Dept. 66
570 Communipaw Ave., Jersey City, N. J.
Please send copy of SMOOTH-ON HANDBOOK.
Name _____
Address _____
4-25-35

The Smooth-On Handbook will show you how to apply. Write for free copy. *Get Smooth-On No. 1 in 1 or 5-lb. can or 25 or 100-lb. keg from your supply house or direct from us.*

Do it with **SMOOTH-ON**

Make Your Own Test in the Field

Our own experience with Humble products in actual oil field use makes us believe that you'll like them; and this is backed by the experience of many other producing companies. But your own test in the field is the most convincing proof of satisfactory service. So we ask you try Humble Products, to test them thoroughly. We're confident that you'll come back for more.

HUMBLE
OIL AND REFINING COMPANY

HOUSTON, TEXAS

Service Goes With Everything We Sell

SERVICE ON NEW FIELDS

Russell County and Western Kansas

(Continued from Preceding Page)

Producers and operators.

The following are some of the producers and operators that are active in this county or have their headquarters in Russell: Joe Aylward, Alva Billings, Earl Cave, Bridgeport Machine Co., A. A. Buschow, Central Petroleum Co., R. O. Keys, Stanolind Oil & Gas Co., Yankey & Stearns, Stearns & Streeter, J. J. Hall, Lario Oil & Gas Co., Phillips Petroleum Co., Texas Oil Co., Empire Oil & Gas Co., Earl Carey, Winkler & Koch, Hollow Oil Co., Tom Palmer, H. H. Blair and Willis Hartman, Signal Oil Co., Sinclair Prairie Oil Co., Slick, Pryor & Lockhart, Wolf Creek Oil Co., British-American, A. E. Seeley, Tom Johnson, J. E. Missimer, Liggett Oil Co., Rosenthal & Beardmore, Hutchinson Oil & Gas Co., Skelly Oil Co., Gypsy Oil Co., Pat Ashby, Jim Hershey, Jim Davis, Tex Jones and Max Kirk.

Housing conditions in the city of Russell.

Housing accommodations are still inadequate to take care of the demand. Between 20 and 30 houses are under construction at this time and it is believed that within a few months modern facilities will be available for all ordinary needs. The city government and the Chamber of Commerce are alert and are doing all they can to not only encourage the building of modern houses but to see that the city owned utilities and school facilities are enlarged and improved from time to time to take care of the rapidly increasing population.

Financial institutions.

Three banks are located in the oil producing district of Russell County. The Gorham State Bank at Gorham, with $30,000 capital and $500,000 deposits; the Home State Bank at Russell, with $30,000 capital and $600,000 deposits, and the Russell-Farmers State Bank of Russell, with $100,000 capital and $750,000 deposits, with fiduciary powers and authorized to act in the capacity of trustee and executor.

Description of type of country.

Russell County is a part of what is known as the Plains. Lying between the Smoky and Saline Rivers there is much opportunity for diversified farming. In the northern part are fine pastures for cattle and feed raising. West and south of Russell the wheat acreage is large in normal times. There are few trees except along the river banks, and for the most part the country is rolling, with a steady ascent in elevation.

Hotel and other accommodations.

There are four hotels and several rooming houses, apartments, cabin camps and private residences ready to accommodate transients.

Domestic water supply.

Domestic water supplied by the City Water Works.

Natural gas.

The Kansas Power & Light Co. serves Russell with natural gas.

Electricity.

The City Power Plant supplies electricity for Russell.

Schools and churches.

Russell's school system consists of a north and south side grade school and high school. The churches are United Brethren, Congregational, Lutheran (German), Methodist and Catholic.

GENERAL CONDITIONS

During the past year Russell County has been one of the "hot spots" of Kansas so far as oil operations are concerned. The development here the past year has been as important as the original discovery well in November, 1923. Up until February, 1934, when the Russell townsite pool was opened, there had been 250 holes drilled in Russell County. Of this number 64 were dry. The development from 1923 to 1934 was confined to the Fairport Field, in the northwest corner of the county; the South Fairport Pool, which is 2 miles south of the Fairport, and the Gorham Field, which is 8 miles south of the Fairport.

At the present time there are 25 producing wells in the Russell Field. There are also six drilling locations. The field now has a north and south length of 2 miles. A dry hole a half mile west and another a half mile east of the original well give indication of the width of the field.

Other development which has taken place in the county during the past year is as follows:

The Niedenthal Pool, 8 miles southwest of Russell, with six producing wells.

The Fink well, 3½ miles south of Russell, where an offset has been proposed.

The Donovan well, 14 miles southwest of Russell, on the banks of the Smoky River.

The Sullivan well, midway between the Niedenthal and the Dillner wells.

The Gurney discovery, 4½ miles southeast of Russell, where two offsets are under way.

Deep sand discovery in the Miller Pool, 9 miles southeast of Russell, where three wells have been producing from the Oswald lime the past five years. These three wells were deepened and production increased approximately 400 per cent. Two more wells are being drilled in the field at this time.

The Gorham, Ochs, Sellens and South Fairport Pools have seen considerable drilling the past year. Numerous wildcats have been drilled in the east, north and northeast parts of the county. Several have been started within the past month.

There are approximately 50 drilling rigs and locations in Russell County at this time. Three of them are wildcat tests several miles north of Russell in territory where a number of holes have been drilled heretofore. A number of the drilling locations are offset extensions and semiwildcat tests.

DRILLING CONDITIONS

The discovery well in the Fairport Pool was drilled with cable tools, and most of the wells drilled in this area have also been drilled with cable tools. There are a few holes being put down to the "Chat" with rotary outfits but standardized to drill into the pay.

The preference for cable tools is largely because of the relatively low formation pressures found in the Oswald lime producing section. Using this method of drilling requires that casing be set at 200 feet—15½ or 12½-inch surface string; 1,250 feet of 10½ inch, 1,900 to 2,000 feet of 8½-inch and about 3,000 feet of 6⅝-inch flow string. This program is varied to suit local conditions.

Steel rigs are used and left on location for pumping the wells. Beam pumping with both electric motors and gas engines is common practice although there are many pumping units with electric motors used in the fields of this area.

FUTURE ACTIVITIES

The western portion of Kansas is all probable oil land and much of it is under lease. It is evident that many tests will be made in the counties west and northwest of Russell County with the headquarters for the field work centering in Russell.

SERVICE ON NEW FIELDS

Sedgwick County, Kansas

Compiled by The Oil and Gas Journal, April 25, 1935

LOCATION OF FIELDS

Approved names of fields.

There are 11 oil pools in Sedgwick County, Kansas, known as the Valley Center, Kuske, Robbins, Greenwich, Kechi, Cross, Goodrich, Curry, Eastborough, Bentley, Schulte Pools.

Discovery of fields.

The Marland Production Co.-Gypsy Oil Co.'s No. 1 A. C. Wright, NE SE Section 12-26-1w, was the discovery well in the Valley Center Pool, completed August 1, 1928; production from Simpson dolomite at 3,366-68 feet.

Marland Oil Co.'s No. 1 Goodrich, SW NE SW Section 16-25-1e, was the discovery well in the Goodrich Pool, completed December 4, 1928; production from dolomite at 3,010-20 feet.

Producers & Refiners' No. 1 Kuske, NW NE Section 24-25-1e, was the discovery well in the Kuske Pool, completed January 29, 1929; production from Chat at 3,013-17 feet.

Connell & Slick's No. 1 Cross, Section 27-25-1w, was the discovery well in the Cross Pool, completed March 2, 1929; production from the Kansas City lime at 2,690-2,735 feet.

Dickey, Shell and Shawver's No. 1 Robbins, NW SW Section 21-28-1e, was the discovery well in the Robbins Pool, completed April 15, 1929; production from Chat at 3,085-90 feet.

Shell Petroleum's No. 1 La Grisse, SW NW Section 15-26-2e, was the discovery well in the Greenwich Pool, completed April 27, 1929; production from dolomite 3,164-66 feet.

Wentz & Patton's No. 1 Swanson, NW NE Section 6-26-2e, was the discovery well in Kechi Pool, completed May 1, 1929; production from sand and chat at 3,010 feet.

Fisher & Lauck's No. 1 Mackey, SE SE Section 19-27-2e, was the discovery well in the Eastborough Pool, completed August 30, 1929; production from Chat 2,950-80 feet.

Plains Oil Co.'s No. 1 Curry, Section 2-27-1w, was the discovery well in the Curry Field, completed October 27, 1929; production from Simpson dolomite.

Hartman Oil Corp.'s No. 1 Jones, NW SW Section 19-25-1w, originally drilled by Vanzant and Mason, was completed as a dry hole on February 21, 1929 at 3,505 feet; was cleaned out and plugged back to the Kansas City lime at 2,910-20 feet; treated with acid and became a producer on March 7, 1934, and is the discovery well in the Bentley Pool.

D. R. Lauck's No. 1 Jordon, NW SW SE Section 6-28-1w, was the discovery well in the Schulte Field, completed March 18, 1934; production from Simpson dolomite at 3,652 feet.

Prior to the discovery of commercial production in the Valley Center Pool, on August 21, 1928, numerous wildcat wells had been drilled in Sedgwick County. Following the discovery of the Valley Center Pool, interest was increased in wildcatting and within one year eight other pools had been discovered.

Number of operations, April 1, 1935.

On April 1 there were five wells drilling in the Robbins Pool, two wildcats and one location in the Robbins Pool and completion has just been made of two wells in the Wright Pool and two wells in the Robbins Pool.

Future activity.

Future activity in Sedgwick County will probably be confined to wildcat drilling as the pools discovered have been primarily defined. Several blocks are now held under short term leases and in all probability will be drilled in the next few years. Most of these blocks are in the west and south portions of the county.

Drilling water.

There is plenty of water for drilling purposes in practically all parts of the county from shallow wells, which can be drilled at a very low cost. The water is noncorrosive and does not need treating except in the immediate vicinity of the Big Arkansas River. Several small creeks traverse the area and can supply water, but it is not necessary to depend on them because there is a plentiful supply of shallow well water from 25 to 200 feet.

How wells are drilled.

Most of the wells in the Valley Center, Eastborough, Greenwich and Robbins Pools, the major pools of the county, were drilled by contract and have been drilled with rotary equipment.

Proration restrictions.

Proration is carried on in co-operation with the federal oil administrator through the oil and gas conservation division of the State Corporation Commission, and is supervised by the state oil umpire who allocates to the several pools of Kansas their proportionate part of the state market each month.

Pipe lines.

Practically all production in Sedgwick County has pipe line connections. There are nine companies maintaining pipe lines in this county, namely, Shell Petroleum Corp., Skelly Oil Co., Derby Oil Co., Gulf Pipe Line Co., Sinclair Prairie Pipe Line Co., Continental Oil Co., Empire Refining Co., White Eagle Refining Co. and Barnsdall Oil Co.

GENERAL CONDITIONS

Principal cities and towns near fields.

Wichita, the county seat of Sedgwick County, is located near the center of development. Valley Center is adjacent to the Valley Center Pool, while the cities of Kechi and Greenwich are adjacent to the Kechi and Greenwich Pools.

Railroads serving the area.

The Valley Center Pool is served by the Santa Fe, Frisco and Arkansas Valley Interurban Railroad companies; the Kechi Pool is served by the Rock Island; Greenwich Pool by the Missouri Pacific; the Robbins Pool by the Rock Island and Midland Valley.

The following railroads serve Wichita and are accessible to all Sedgwick County pools: Santa Fe, St. Louis & San Francisco, Rock Island, Missouri Pacific, Midland Valley and the Arkansas Valley Interurban.

Supply houses.

The oil pools of Sedgwick County are served by supply houses located in Wichita and Wichita Heights, a suburb about 3 miles north. Good roads lead to all fields permitting materials to be delivered there by truck.

Sites available for supply branches.

Land with trackage may be secured for warehouse sites in the north industrial district or in Wichita Heights, located near U. S. Highway 81, which connects with highways leading to all pools in the district and western and northern Kansas.

Character of roads.

U. S. Highway 81 traverses the county north and south, extending throughout the State, likewise U. S. Highway 54 extends east and west. These two highways are paved and make connection from Wichita to highways leading to fields in Kansas and Oklahoma, as well as supply centers. Other highways in the county are K-42, K-96 and K-16 which are either graveled or bituminous mat surfaced.

Type of country.

This portion of Kansas is undulating prairie with very little natural timber, gently rolling and somewhat sandy. It is considered excellent for farming and the majority of the land is under cultivation. Wheat, corn, dairy farming, truck farming, horticulture and poultry farming are the principal agricultural resources. The major drainage includes the Arkansas River, the Little Arkansas River, north and south forks of the Ninnescah River. About 50 per cent of the land is considered bottom land. The area of Sedgwick County is 1,008 square miles, or 645,120 acres.

Trucking and hauling facilities.

Wichita is the headquarters for many private, contract and common truck carriers operating into all parts of Kansas and Oklahoma.

Hotel and other accommodations.

Wichita has the best and most extensive hotel accommodations of any city in the State, having available over 2,400 hotel rooms, as well as apartments and single family houses. The Allis, Lassen, Broadview and the McClellan are the principal hotels.

Electric power and gas companies.

Wichita and Sedgwick County are supplied gas by the Wichita Gas Co. and the Wichison Industrial Gas Co., while the Kansas Gas & Electric Co. supplies electric power in city and rural regions of the county, as well as many of the oil fields. Wichita is supplied water by the Wichita Water Co.

(Continued on Next Page)

SERVICE ON NEW FIELDS

Sedgwick County, Kansas

(Continued from Preceding Page)

from wells located along the banks of the Big and Little Arkansas Rivers.

Schools and churches.

All towns in Sedgwick County have good public school systems, also churches representing the leading denominations. Wichita affords instruction from kindergarten to the university degrees in the public school system, as well as having schools, colleges and academies supported by religious organizations. There are 122 church organizations in Wichita of which 71 have church edifices. Included in Wichita's school facilities are a large number of trade schools including instruction in music, art, business training, welding, automobile repairing, aircraft manufacture, flying, electrical wiring, business machine operating.

Air transportation facilities.

Wichita is served by two transcontinental airmail, air express and passenger transportation systems, namely, the Transcontinental & Western Air, Inc., which provides passenger, express and mail service running from Los Angeles to New York, and the Braniff Airways from Chicago to Brownsville, Tex. In addition to these regular transport lines, there are a number of flying services maintaining air taxi service to any and all parts of the State and nation.

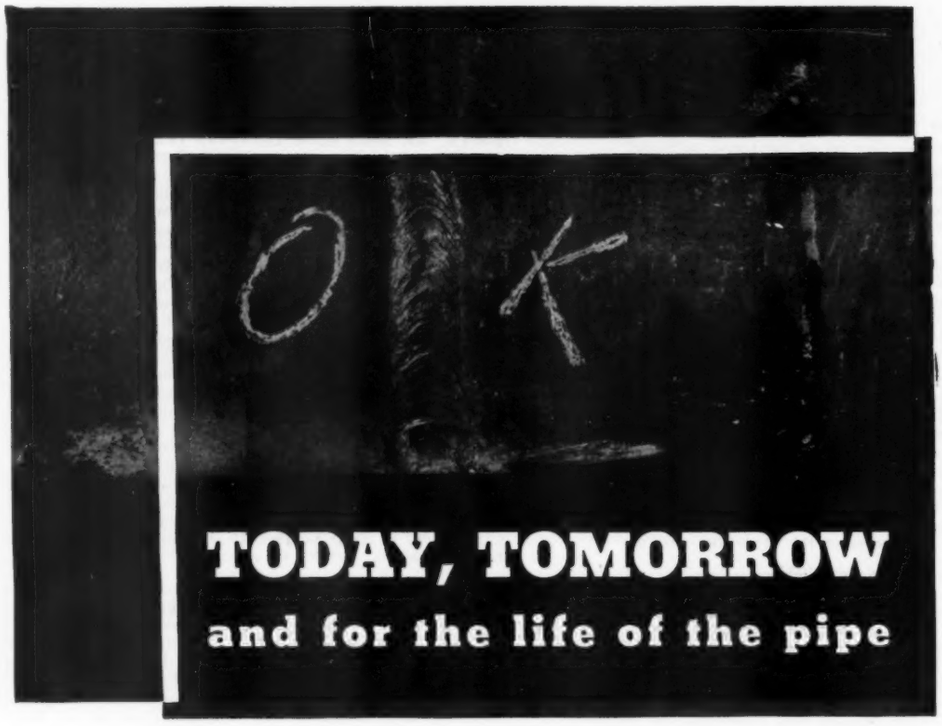
Supply concerns represented in Wichita.

The Acme Pipe & Machine Shop, Wichita Heights; Allsteel Products Manufacturing Co., 801 South Wichita; Baker Oil Tools, Inc., 538 North Volutsia; Bovaird Supply Co., Wichita Heights; Bridgeport Machine Co., 600 East Thirty-fifth Street; Chemical Process Co., 631 North Topeka; Continental Supply Co., Fourth National Bank Building, warehouse stocks at Wichita Heights; Dowell, Inc., Union National Bank Building; Drillers Supply Co., Ellis-Singleton Building; Federal Supply & Machine Co., R.F.D. 2; Frick-Reid Supply Corp., 3844 East Second; General Oil Tool Co., Bitting Building; Goldenstern Pipe & Supply Co., 704 West Second; Halliburton Oil Well Cementing Co., Fourth National Bank Building; Hinderliter Tool Co., Wichita Heights; International Derrick & Equipment Co., 221 West Sixteenth; Jarecki Manufacturing Co., 2119 East Kellogg; Mountain Iron & Supply Co., Ellis-Singleton Building; National Supply Co., Wichita Heights; O. C. S. Manufacturing Co., 409 South Clifton; Oil Field Supply Co., 3348 North Market; Oil Well Supply Co., Wichita Heights; Parkersburg Rig & Reel Co., 305 South Erie; Tret-O-Lite Co., 4129 East Douglas; Union Wire Rope Corp., Union National Bank Building; Zipper Pulling Machine Co., 1941 South Broadway; Morgan Petroleum Engineering Co., Ellis-Singleton Building; Winkler-Koch Engineering Co., 235 West Lewis; Black, Sivalls & Bryson Tank Co., Ellis-Singleton Building; Air Reduction Sales Co., 402 East Twenty-ninth; Linde Air Products Co., 550 East Seventeenth; Western Machinery Co., 305 North Wichita; Clear Vision Pump Co., 822 East Harry; Industrial Supply Co., 700 East Twenty-ninth; Hayes Equipment Manufacturing Co., 624 East Gilbert; Western Iron & Foundry Co., 702 East Second; George C. Christopher & Son, 1220 Blaine; Kansas Blue Print Co., 141 North Market; Mid-Continent Map Co., 123½ East Douglas; Kansas Well Log Bureau, 412 Union National Bank Building; Western Petroleum Exploration Co., Union National Bank Building; Phillips & Easton Supply Co., industrial supplies and equipment, R. G. Kirkwood, 405 West Douglas; Allis-Chalmers Manufacturing Co., 239 North Rock Island and 244 South Wichita; White Star Co., industrial supplies and equipment, 211 North St. Francis; Houston-Doughty Lumber Co., Beacon Building; Rock Island Lumber Co., Beacon Building; T. M. Deal Lumber, Beacon Building, and J. W. Metz Lumber Co., 401 North Main.

General.

Wichita, following the discovery of oil in the Augusta and Eldorado Pools in 1917 and 1918, became the headquarters in Kansas for oil development in this State and since that time most of the major oil companies have maintained a Kansas land and production department at Wichita. With the continued development and opening of new pools in Kansas, many of the major supply companies opened up state offices in Wichita, as well as warehouse stocks in both Wichita and centers of Kansas oil development. Likewise, refining and marketing in Kansas have centered their activities in Wichita and vicinity. Wichita is conveniently located to most of the oil producing areas in Kansas and makes an ideal location from which to operate. This is evidenced by the fact that over 100 independent oil operators and major oil company land departments maintain their Kansas headquarters operations in Wichita, as well as a large number of competent consulting geologists.

Business district of Wichita, Kansas



More than a million pipe line joints welded by the shielded arc with Lincoln equipment have passed all the required inspections and tests for strength, ductility and tightness. Stronger than the pipe, more ductile than the pipe and equal in density, shield-arc welded joints outlasts the pipe. Time and again accelerated corrosion tests have proven shield-arc welds have greater resistance to corrosion.

Long after you have forgotten the greater speed and ease of welding pipe lines with *"Shield-Arc"* welders and *"Fleetweld"* electrodes, the record of no leaks and no breaks in the joints will remind you of the high quality welds this Lincoln equipment produces. Find out why *"Shield-Arcs"* weld more O. K. joints per day at lower cost. Ask The Lincoln Electric Company, Cleveland, Ohio. Largest Manufacturers of Arc Welding Equipment in the World.

POP "That other welder salesman didn't like it very well when the engine driven '*Shield-Arc*' with its automatic idling device showed 35% less fuel consumption than his machine."

LAD "Yes, I noticed he slammed the Lincoln outfit pretty hard. Sign this order for '*Shield-Arcs*', Pop. It will prove to him that whenever you sling mud, you lose ground."

W-101

LINCOLN
"SHIELD-ARC" WELDERS

Kansas Pipe Line System Expanding

(Continued from Page 57)

through Grainola, Okla., to Augusta, Kans. This line passed through the Burbank Pool opened in 1920 and after the Kansas fields served by it had declined to stripper wells the section of line from Augusta, Kans., to Grainola, Okla., was taken up. The Oklahoma Pipe Line Co. no longer secures any Kansas oil.

The Gulf Pipe Line Co. also laid a 6-inch screwed line from their main line station near Cushing, Okla., to the Eldorado, Kans., Field in 1917, and this branch of the Gulf system is still operating.

When the Independent Oil & Gas Co., a subsidiary of the Phillips Petroleum Co. of Bartlesville, Okla., bought the Manhattan Refining Co. of Kansas City, Kans., several years ago they acquired the pipe line system that had been serving that plant delivering oil from the Eldorado and Augusta Fields. The line was later extended to Wichita and is known as the Standish Pipe Line Co.

In February, 1935, the Standish Pipe Line Co. acquired the Central Kansas Pipe Line Co.'s system that served fields in Ellsworth, Rice, Reno and McPherson Counties in central Kansas. A new 11-mile line was laid to the Ritz Field east of McPherson and the whole system connected to the main pipe lines of the Standish Pipe Line Co. and through this system of lines oil is now delivered to the 15,000-bbl.-per-day capacity refinery at Kansas City, Kans., or oil may be delivered to the refinery at Okmulgee, Okla.

During 1933 the Shell Pipe Line Co. constructed 83 miles of trunk lines in Kansas for the purpose of securing oil from Johnson, Voshell, Hollow and Burrton Fields in central Kansas. This line runs southeast to Greenwich Pool and then due south to Churchill Field in Sumner County and terminates at the Arkansas City refinery of the Shell company. This system has a rated capacity of 20,000 bbls. daily.

State Lines

Within the state there are many pipe lines that serve refineries such as the Derby Oil Co.'s line delivering oil collected in eastern Kansas fields to the refinery at Wichita, Kans.

The Dickey Refinery Co. has a plant at McPherson, Kans., that is running on oil produced in the Voshell Pool near that city. The Eldorado Refinery Co. of Eldorado, Kans., has its own pipe line system. The Falcon Refining Co. of Great Bend, Kans., is not served by pipe line and oil is hauled to it by truck.

The Globe Oil & Refining Co. of McPherson, Kans., is served by the Standish Pipe Line Co. and the Kanotex Refining Co. of Arkansas City, Kans., also uses considerable Kansas oil.

The Skelly Oil Co. has a refinery at Eldorado, Kans., with a capacity of 20,000 bbls. daily and oil is delivered to it by the Skelly Pipe Line that originates in Cunningham Field, Kingman County, Kansas, passes through Burrton Field and taps other fields before reaching its destination at the plant.

Socony-Vacuum Oil Co. operates the White Eagle refinery at Augusta, Kans., and practically all of the oil refined there is delivered by local pipe lines originating in Kansas oil fields.

At Coffeyville, Kans., there is an 8,000-bbl. capacity refinery operated by the National Refining Co. that runs on oil produced in northeastern Oklahoma and eastern Kansas and handled by its own pipe line system.

The Phillips Petroleum Co. has an 18,000-bbl.-per-day refinery at Kansas City, Kans., that is served by the Standish Pipe Line Co. and uses about 2,000 bbls. of oil gathered in Kansas fields. This quantity of Kansas oil may be increased now that this company has taken over the central Kansas Pipe Line System.

Development Programs

Prior to 1914 the oil industry in Kansas might properly have been termed "an oil game" for it was largely dominated by speculators out to get rich quick. It did not cost a great deal to acquire leases and drill tests and if oil was discovered the returns on the investment were large.

With the advent of geology into the industry because of the desire of larger companies to find oil fields with a view of building up their company's assets and planning ahead there was a change in the basic principles of the industry about 1914. While most of the exploratory work was confined to the region of eastern Kansas known as the Nemaha Mountains or the buried "Granite ridge" and the Cherokee Basin of southeastern Kansas it had been proven that geological exploration could reduce the hazard of drilling very greatly and for that reason some companies built up large geological departments. Demand for oil was good in 1914, 1915 and 1916 with prices high enough to insure good profits.

This later plan of development insured the pipe line companies of better control of production and an ever-increasing number of new fields from which oil could be secured.

Eastern refineries were interested in securing a supply of Mid-Continent oil to replace the depleted oil fields of the East. The outlet was therefore assured and as many new refineries were also built in the Middle West during this period crude oil was in demand.

Some oil was stored in anticipation of future demands but for the most part the pipe lines served as transportation systems only.

The oil fields of eastern Kansas, however, did not prove to be productive of large quantities of oil for long periods of time. New fields kept adding to the supply but in time the discovery of new pools in the eastern section of the state was practically at an end and there was then an excess of pipe line capacity.

With the discovery of oil in Russell County in 1923 there was a movement westward from the Granite Ridge fields that gradually developed a large number of new pools in central and west central Kansas. The demand for Kansas oil was not as great, after 1923 as it had been in 1917 and 1918 when that state supplied approximately 11 and 13 per cent of the country's needs respectively taken largely from the Eldorado and Augusta Fields which were then being rapidly drilled and produced. The quantity of oil delivered by Kansas during these later years was in excess of 30,000,000 bbls. yearly.

The pipe line companies did not extend their lines into western Kansas as rapidly as new pools were delivered principally because such extensions meant the laying of long lines from the existing systems and until a sufficient number of wells were completed to insure a supply of oil large enough to justify the expenditure the laying of new lines was deferred.

Now that these western Kansas pools have been developed to a sufficient capacity to insure ample oil the pipe lines have been extended and will continue to be lengthened to take in new pools as they need outlets.

ELECTRIC POWERED RIGS*

	1934	1935
Rotary outfits	23	6
Standard cable tools	43	4
Drilling machines	7	1
Spudders	14	4
Total	87	15
Per cent rotary to cable tools	26½%	40%

*From records of one utility company in Kansas.

This company supplies electric power for pumping between 600 and 625 wells; for power for 51 pipe line stations, six of which are main line plants. Full electrical requirements for nine oil refineries and approximately 50 per cent of the electrical requirements of one other refinery. All this service is delivered in Kansas.

THE HALL ABSTRACT & TITLE COMPANY

ABSTRACTS ON RENO COUNTY, KANSAS.

Fee - royalty - leasehold and general information

Phone 1740

No. 8 E. Sherman Hutchinson, Kas.

The Morgan Petroleum Engineering Co.

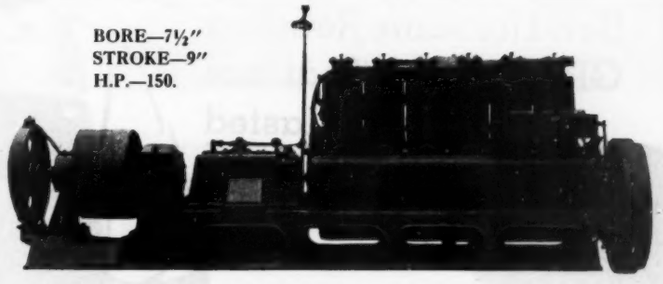
Specializing in Acid Treating

in KANSAS

Fully equipped to give quick and efficient service

The Morgan Petroleum Engineering Co.

Wichita Phones 3,3291 - L.D. 121 | 509 Ellis-Singleton Bldg. WICHITA, KANSAS | Hoisington Phone 7



The Wright Reliable Big Six Gas-Gasolene DRILLING ENGINE

ASK FOR BULLETIN 107

The Wright Machine Co., Inc.

OWENSBORO, KY.

World's Largest Marketers of

PETROLEUM COKE

● INQUIRIES AND OFFERS INVITED

GREAT LAKES FUEL CORP.

500 Fifth Avenue, New York, N. Y.

Distributors for GREAT LAKES COAL and COKE CO.

CF *for maintaining* ATMOSPHERIC PRESSURE

Fulton Duplex Vacuum Regulator

IN storage tanks discharging gases to a line under light vacuum, atmospheric pressure can be maintained at all times by use of the Fulton Duplex Vacuum Regulator.

When pressure in the storage tanks falls, the regulator closes. Action is simple and sure. Ask for circular 2449.

The Chaplin-Fulton Manufacturing Co.

28-40 Penn Avenue Pittsburgh, Pa.

REPRESENTATIVES:

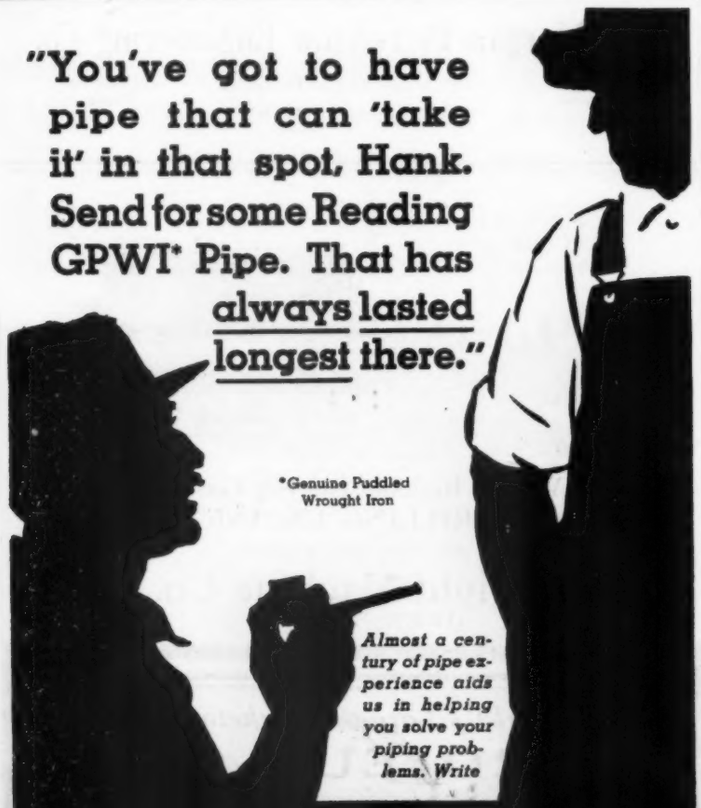
WESTCOTT & GREIS, Inc. *Sales and Service* Dallas—Tulsa

C. H. COLLINS 628 Dwight Bldg. Kansas City, Mo.

HIMELBLAU, BYFIELD & CO. 228 N. LaSalle St. Chicago, Ill.

Or any Jobber

"You've got to have pipe that can 'take it' in that spot, Hank. Send for some Reading GPWI* Pipe. That has always lasted longest there."



*Genuine Puddled Wrought Iron

Almost a century of pipe experience aids us in helping you solve your piping problems. Write

READING IRON COMPANY

PHILADELPHIA

SCIENCE AND INVENTION HAVE NEVER FOUND A SATISFACTORY SUBSTITUTE FOR GENUINE PUDDLED WROUGHT IRON

Kansas Oil Fields

Note—The depths given in the parentheses opposite county names indicate "minimum-maximum" or "average" depths of producing formations within the county.

*These pools included in East Kansas shallow wells, 11,342. 0-5 bbls.

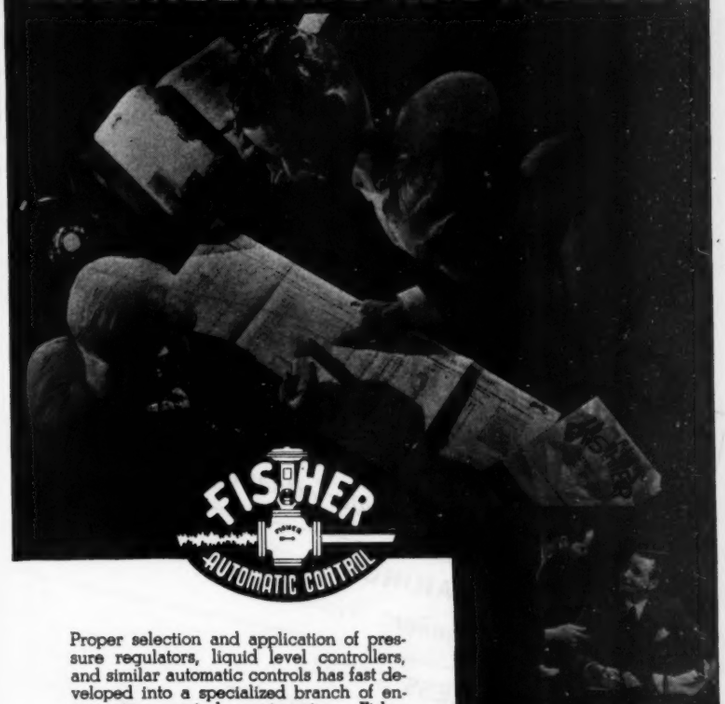
Field—	Discovery date	No. of wells	Average capacity
Wyandotte County* (270-800 ft.)—			
Bonner Springs	1870	....	.....
Welborn—gas	1870	....	.....
Fairfax—gas	1870	....	.....
Johnson County* (130-950 ft.)—			
Craig-Monticello	1870	....	.....
Dallas	1870	....	.....
Miami County* (160-750 ft.)—			
Paola	1860	....	.....
Wellsville	....	....	.....
Lucyrus	....	....	.....
Wagstaff	....	....	.....
Big Lake	1925	....	.....
Block	....	....	.....
Fontana	....	....	.....
LaCygne	....	....	.....
Linn County* (85-750 ft.)—			
Parker Goodrich	....	....	.....
Centerville	....	....	.....
Blue Mound	....	....	.....
Mound City—gas	....	....	.....
Bourbon County* (150-850 ft.)—			
Five small fields	1918–1919	....	.....
Crawford County* (100-640 ft.)—			
Walnut Hepler	1917	....	.....
Leavenworth County* (Shallow)—			
Linwood	....	....	.....
Franklin County* (160-720 ft.)—			
East Ottawa	....	....	.....
Peoria	....	....	.....
Rantoul	1904	....	.....
South Ottawa	....	....	.....
Pomona	....	....	.....
Anderson County* (230-1,070 ft.)—			
Pottawatomie Valley	1904–1922	....	.....
Colony	1921	....	.....
Allen County* (600-1,500 ft.)—			
Iola	1873	....	.....
Moran	1899	....	.....
Humboldt—gas	1901	....	.....
Neosho County* (490-1,200 ft.)—			
Chanute—gas	1899	....	.....
Thayer	1899	....	.....
Island	1900	....	.....
Labette County* (350-1,000 ft.)—			
Cherryvale	....	....	.....
Oswego Shale	1917	....	.....
Bartlesville Sand	....	....	.....
Woodson County (650-1,150 ft.)—			
Neosho Falls*	....	....	.....
Virgil	1921	....	.....
Woodson miscellaneous	1921	9	0-5
Winterscheid	1927	184	0-5
Wilson County* (250-1,300 ft.)—			
Benedict	....	....	.....
Altoona Vilas	1906	....	.....
Fredonia	1890	....	.....
New Albany—gas	....	....	.....
Neodesha	1893	....	.....
Montgomery County (160-1,600 ft.)—			
Larimer-Sycamore*	1924	....	.....
Bolton*	1902	....	.....
Independence*	1893	....	.....
Tyro*	1903	....	.....
Coffeyville	1892	7	0-5
Caney*	1924	....	.....
Greenwood County (300-2,000 ft.)—			
DeMalorie-Sowder	1923	128	0-5
Agyeo-Pixlee	1923–1925	68	0-5
Madison	1923	119	5-10
Norton*	....	....	.....
Lamont	1927	107	0-5
Seeley	1921	330	0-5
Edwards*	1927	....	.....
Teeter	1921–1925	204	0-5
Patterson*	....	....	.....
Thrall	1921	318	0-5
Wiggins	1925	68	0-5
Sallyard	1922	242	0-5
Eureka	1927	16	0-5
Climax	1925	5	5-10
Beaumont*	1920	....	.....
Browning	1922	119	5-10
Burkett	1927	93	0-5
Frankhauser	1926	80	0-5
Hamilton	1927	89	5-10
Virgil	1921	491	0-5
Quincy	1927	54	0-5
Reece	1926	15	10-15
Scott	....	74	0-5
Severy	....	9	0-5
Wilkerson	....	35	0-5

(Continued on Next Page)

Field—	Discovery date	No. of wells	Average capacity
Elk County (500-1,400 ft.)—			
Denton	1920	41	0-5
West Elk (miscellaneous)	1918	24	5 10
Hanna	....	19	0-5
Howard	....	4	0-5
Elco*	....	....	.....
Moline	1928	34	5-10
Webb	....	102	0-5
Schrader*	....	....	.....
Arbuckle*	1920	....	.....
Chautauqua County* (300-1,700 ft.)—			
Berlin	1902	....	.....
McAllister	1903	....	.....
Chautauqua County (miscellaneous)	1900--1907	....	.....
Morris County* (600 ft.)—			
Heigle—gas	....	....	.....
Wilde—gas	....	....	.....
Chase County* (64-1,100 ft.)—			
Strong City	....	....	.....
Lipps	1925	....	.....
Elmdale	....	....	.....
Butler County (1,300-2,700 ft.)—			
Augusta, North	1916	114	5-10
Augusta, South	1914	141	5-10
Benton	1927	2	5-10
DeMoss	1935	1	30-35
Douglass	1917	25	5-10
Elbing	1919	68	0-5
Eldorado	1915	1,767	5-10
Fox-Bush	1917	206	0-5
Garden-Shaffer	1926	78	10-15
Haverhill	1927	65	5-10
Hazlette	....	4	0-5
Keighley	1926	68	0-5
Kramer	1926	32	25-30
Leon	....	27	0-5
McCann*	1933	....	.....
Potwin	1921	50	5-10
Smock-Sluss	1920	48	0-5
Weaver	1922	8	0-5
Young	1920	19	5-10
Steinhoff	....	1	50-60
Cowley County (575-3,225 ft.)—			
Burden	....	27	20-25
Carson	1924	21	10-15
Clark	....	4	10-15
Cowley (miscellaneous)	....	42	5-10
Eastman	1924	35	5-10
Fall City	....	17	0-5
Ferguson	....	9	90-100
Graham	1924	15	5-10
Hittle	1927	16	5-10
Rainbow Bend	1924	117	10-15
Rock	1922	17	5-10
Smith	1924	11	5-10
State	....	22	5-10
Winfield	1914	146	5-20
Murphy	....	1	60-70
Udall	....	....	.....
Dexter	....	....	.....
Arkansas City	....	....	.....
Olen	....	....	.....
Fall City	....	17	0-5
Le Sturgeon	....	....	.....
Marion County (2,300 ft.)—			
Covert-Sellers	1920	23	5-10
Florence-Urschell	1920	18	10-15
Hillsboro	1928	12	45-50
Lost Springs	1927	48	5-10
Peabody	1920	42	5-10
McPherson County (3,000-3,650 ft.)—			
Chindberg	1932	....	.....
Graber	1934	4	550-650
Johnson	1932	33	100-110
McPherson	1928	13	45-50
Nikkel	1932	51	375-400
Ritz	1929	271	60-70
Voshell	1929	119	80-90
Harvey County (2,400-3,660 ft.)—			
Halstead	1929	2	80-90
Hesston	1934	2	20-25
Hollow	1931	98	120-130
Sperling	1934	1	1,550-1,650
Walton	1923	1	15-20
Sedgwick County (3,400-3,600 ft.)—			
Bentley	1934	1	40-45
Cross	1929	3	15-20
Curry	1929	....	.....
Eastborough	1929	51	30-35
Goodrich	1928	13	70-80
Greenwich	1929	76	110-120
Kechi	1929	1	140-150
Kuske	1929	1	15-20
Rapp	....	1	30-35
Robbins	1929	38	300-325
Schulte	1934	1	200-220
Valley Center	1928	71	40-45

(Continued on Next Page)

ENGINEERING KNOWLEDGE



Proper selection and application of pressure regulators, liquid level controllers, and similar automatic controls has fast developed into a specialized branch of engineering—control engineering. Fisher Governor Company maintains a staff of engineers highly trained in this work who will gladly help you on the selection of the correct type or size of regulator to best meet the requirements of your installation. There is no obligation for this service.

Complete "Valve Sizing" charts, such as the engineers, above, are using, enables you to easily size FISHER Regulators for all fluid or pressure conditions. These charts are printed in handy bulletin form. Your copy will be mailed upon request.

FISHER GOVERNOR COMPANY

2334 E. EIGHTH STREET, LOS ANGELES, CALIF. — 50 CHURCH STREET, NEW YORK, N. Y.

201 SOUTH FIRST AVENUE MARSHALLTOWN IOWA

SERVICING KANSAS

Our Office and Crews are geographically located to give the quickest, best possible service in RIG BUILDING—CONTRACTING.

Our WORKMANSHIP is on par with any in the State, and we expect to improve in both respects in the future.

THE KEITH RIG COMPANY, INC.

L. R. KEITH, Wichita, Kansas, Telephone 4-6521 or 3-4657

WICHITA, KANSAS, 820 Beacon Building, Telephone 4-4767

RUSSELL, KANSAS, Telephone 155 or 545

MASON-NEILAN
Ball Bearing
CONTROL VALVES
No. 37 and 38

✓ FULL FLOATING ACTION
insures closer control

✓ LARGE DIAPHRAGMS
provide greater actuating power

✓ BALL BEARINGS
eliminate friction

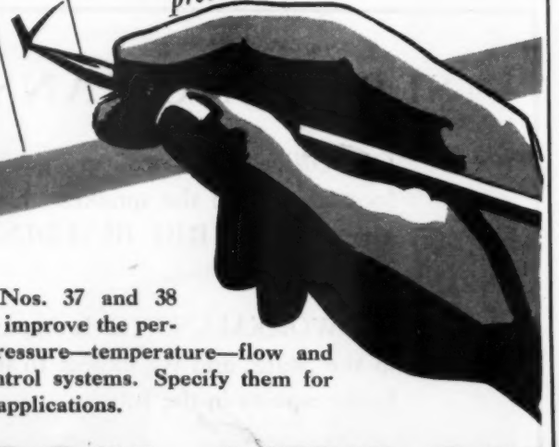
✓ STAINLESS STEEL
parts resist corrosion

✓ PARABOLIC VALVE
controls flow exactly over full volume range

✓ CENTROGUIDE VALVE
reduces wire drawing

✓ POSITION INDICATOR
shows valve position

✓ COMPLETELY ENCLOSED
prevents damage and tampering



Mason-Neilan Nos. 37 and 38 Control Valves improve the performance of pressure—temperature—flow and liquid level control systems. Specify them for all instrument applications.

MASON-NEILAN
REGULATOR COMPANY
1190 Adams Street, Boston, Mass.

YOU CAN BE SURE OF MASON-NEILAN PRODUCTS

Field—	Discovery date	No. of wells	Average capacity
Sumner County (3,200-3,430 ft.)—			
Caldwell	1929	3	130-140
Churchill	1926	67	15-20
Latta	1927	7	20-25
North Vernon*	1928	....	.....
Oxford	1927	62	15-20
Padgett	1925	24	20-25
Sumner (miscellaneous)	....	3	5-10
Wellington	1929	6	200-220
West Oxford*	1926	....	.....
West Rainbow Bend*	1925	....	.....
Ellsworth County (3,230 ft.)—			
Bredford	1932	10	100-110
Heiken	1930	4	50-60
Lorraine	1934	6	1,350-1,450
Stoltenberg	1931	17	350-375
Stratman	1931	19	50-60
Wilkens	1934	3	110-120
Rice County (3,250 ft.)—			
Beyer	1931	8	70-80
Brandenstein	1933	2	550-650
Chase	1932	51	325-350
Geneseo	1934	4	1,450-1,550
Geneseo Townsite	1934	....	.....
Grove	1934	26	950-1,150
Orth	1932	5	60-70
Ploog	1930	3	650-750
Raymond	1929	32	220-240
Sharpe	1931	28	325-330
Steckel	1932	3	400-450
Thode	1933	3	260-280
Welch	1924	29	70-80
Reno County (3,600 ft.)—			
Abbeyville	1927	3	260-280
Burrton, North	....	11	120-130
Burrton, South	1931	57	220-240
Burrton (H. L.)	....	75	1,950-2,050
Hilger	1934	2	325-330
Stone	1934	3	300-325
Kingman County (3,450 ft.)—			
Cunningham	1931	25	140-150
Russell County (2,900-3,200 ft.)—			
Dillner	1930	2	20-25
Donovan	1935	1	150-160
Fairport	1923	140	30-35
North Fairport	1924	140	30-35
South Fairport	1926	140	30-35
Fink	1934	1	280-300
Freed	1935	1	200-220
Gideon	1930	1	20-25
Gorham	1926	47	30-160
Guerney	1935	1	350-375
Hall	1931	2	550-650
Niedenthal	1934	6	550-650
Ochs	1929	10	300-325
Russell	1934	21	650-1,250
Sellens	1929	15	220-240
Sullivan	1935	1	200-220
Barton County (3,350 ft.)—			
Beaver	1934	1	550-650
Albert	1935	1	300-325
Davidson	1930	....	.....
Ellinwood	1932	15	280-300
Isern	1931	4	450-500
Lanterman	1934	1	190-200
Straub	1934	1	40-50
Stafford County (3,710 ft.)—			
Gates	1933	4	280-500
Richardson	1930	11	550-650
Barber County—			
Whelan	1934	1	220-240
Rooks County (3,420 ft.)—			
Dopita	1934	....	.....
Hoskins	....	1	110-120
Laton	1927	3	20-25
Webster	1930	1	260-280
Ellis County (3,700-3,920 ft.)—			
Hadley	1929	....	.....
Shutts	1928	12	70-80
Yocemento	1929	1	10-15
Rush County—			
Bison	....	1	25-30
Otis	1934	1	25-30
Greenwalt'	1931	1	25-30
Edwards County (4,575 ft.)—			
McCarty	1929	2	5-10
Trego County (3,627 ft.)—			
Wakeeney	1934	2	550-650
Rega	1929	2	550-650
Ness County (4,428 ft.)—			
Aldrich	1929	1	.....
Clark County (5,450 ft.)—			
Morrison	1926	....	.....
Scott County (4,680 ft.)—			
Shallow well	1934	1	572
Finney County (2,740 ft.)—			
Holcomb	....	....	.....
Haskell County (2,700 ft.)—			
Satanta	....	....	.....
Grant County (2,710 ft.)—			
New Ulysses	....	....	.....

SIMPLE BUT ADEQUATE
Our conception of "service" is to
have WHAT you want WHERE
you want it WHEN you want it.

Continental

SERVING THE OIL AND GAS INDUSTRIES

ABSORB VIBRATION . . . and

increase pump efficiency
while reducing upkeep and
repair cost . . . with

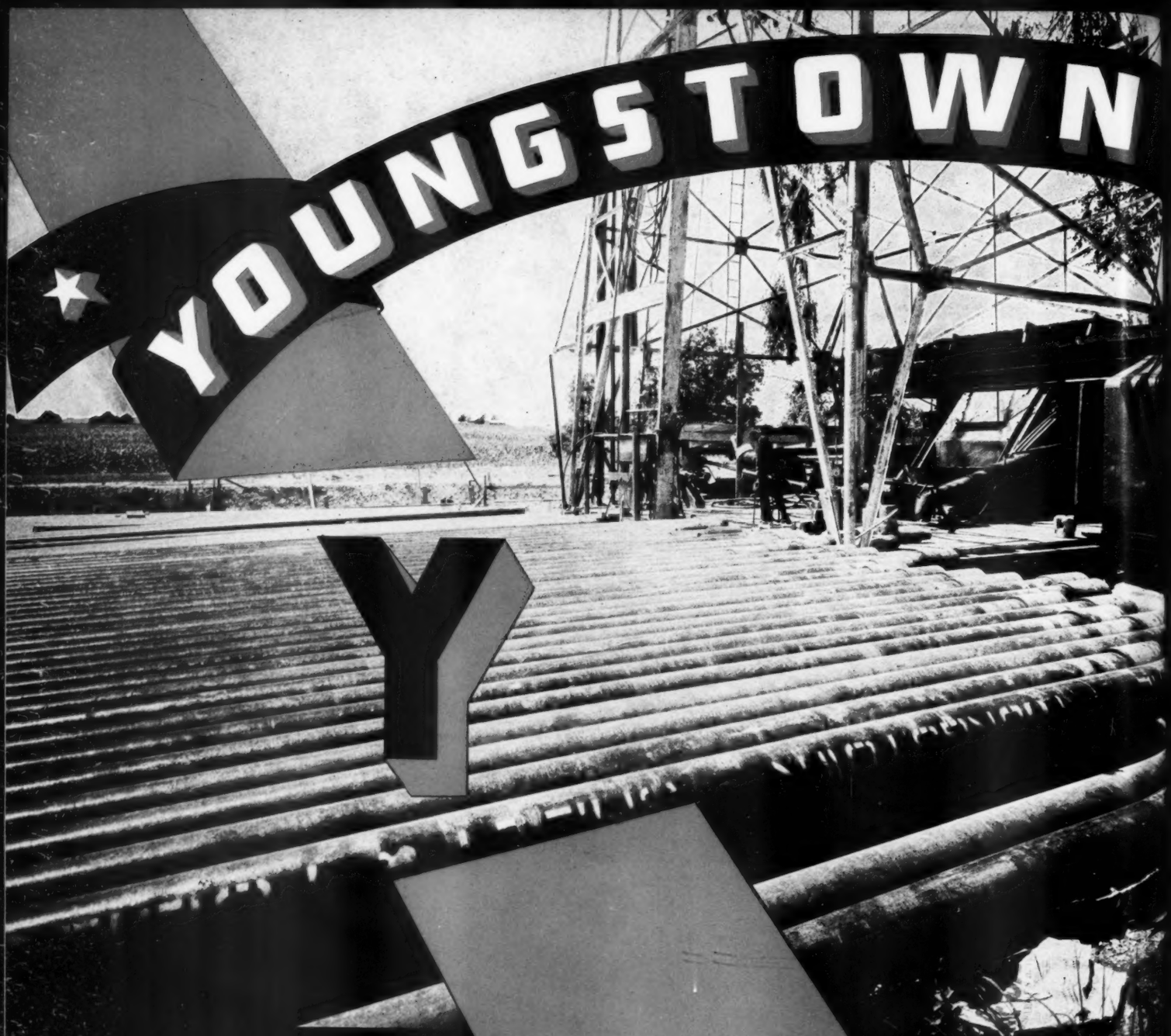
"CSCO" SUCTION HOSE

With the usual set-up having a rigid connection to the suction pipe (generally some 18 to 20 odd feet in length with right angle connection) not only are connections sometimes broken off from resulting vibration, but connections are often so loosened that air admitted to the line seriously affects pump efficiency and creates a real hazard of damage to the pump.

The use of a length of "CSCO" Suction Hose guards against these troubles by: (1)—reducing vibration to a minimum; (2)—doing away with the cost of two or more connections and providing, through a gradual arc, the elimination of turbulence in the fluid column; (3)—adjusting point of intake, the flexibility of hose section permitting easy lowering or raising, as well as swinging sidewise if desired.

"Serving the Oil and Gas Industries"

THE CONTINENTAL SUPPLY COMPANY
GENERAL OFFICES: DALLAS, TEXAS
THE CONTINENTAL SUPPLY CO., LTD., 618 Lancaster Bldg., Calgary, Alberta, Canada
Export Offices: CONTINENTAL EMSCO CO., Inc., 30 Rockefeller Plaza, New York, N.Y.
London Offices: Dashwood House, Old Broad Street, London, E. C. 2, England
CONTINENTAL EMSCO S.A.R. Strada Marfurilor, Ploesti, Roumania



PLAY SAFE

Trouble-shooting is a fascinating .... but bitterly expensive ....operation. To minimize your need for it play safe by sticking to "YOUNGSTOWN" oil country tubular goods....drill pipe, casing .... tubing .... and line pipe.

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon and Alloy Steels

General Offices - - YOUNGSTOWN, OHIO

Youngstown's pipe is distributed by --

THE CONTINENTAL SUPPLY COMPANY, Dallas, Texas
REPUBLIC SUPPLY CO. OF CALIFORNIA, Los Angeles
THE YOUNGSTOWN STEEL PRODUCTS CO., Dashwood House, Old Broad Street, London, E. C, 2, England

OIL COUNTRY
TRADE MARK
YOUNGSTOWN
PIPE

Continuation of Strong Gasoline Tone Is Feature of Price Situation in Chicago

By SPECIAL CORRESPONDENT

CHICAGO, Apr. 22.—Continuation of the strong tone in the tank car gasoline market has been a feature of the oil price situation here in the past few days, with refiners and even reselling carlot marketers apparently in general agreement as to the likelihood of additional advances. Fractional price increases are in effect currently above the highs of last week and sellers are able to realize these quotations on orders actually placed. It continues to be strictly a seller's market.

The skepticism noted here and there in market circles as to the legitimacy of the price advance and the possibilities of its continuation is not now so widely encountered. The general belief hereabouts is that if the major companies remain firm in their co-operation as to buying support, there is little likelihood of an important setback; assuming of course, control of such important producing areas as East Texas still makes itself felt in significant fashion.

Gallonage Irregular But Total Good

While sentiment here is generally optimistic, some disappointment has been expressed that weather conditions have held back spring consumption. Nevertheless, a good many refiners and distributors report extremely good business both in their own outlets and through the trade. This condition is not evenly distributed, with some rather unfavorable gallonage reports, especially from the western region of the central states, where dust storms have cut into business. The April 18 freight increases brought out heavy shipping instructions.

Jobbers are still agitating strongly for some liberalization of the margin scale which has been for some time based on 5½ cents above the average of the low of published prices. This basis, it is being urged by jobbers, is insufficient to permit them to operate satisfactorily, or even to meet costs, considering the higher expenses involved in operating under the oil code, and especially in connection with higher wages. They are advocating immediate changing of this margin arrangement to 5½ cents over the average instead of the lows and a little later they wish the basis changed to 5¾ or 6 cents instead of 5½ cents. There has been indication the major companies are giving close attention to this situation and these margins may be increased a little later, when the general price structure has been sufficiently advanced. The jobber's position is somewhat improved in the past few months, because he is not being harassed by destructive price wars.

Few Price Wars

At present there are only a limited number of important price cuts in the central states. Some by way of being eradicated. Others are of a difficult and persistent nature and are likely to prove quite hard to handle. Jobbers are holding meetings and trying to work out their programs for future action as are track-side operators and others in general marketing. Strong resolutions have been passed by jobbers at recent meetings looking toward some action by governmental agencies or otherwise. Some state oil associations are being reorganized, and new administrations of these associations are planning their work for the coming months.

Major oil companies and some smaller ones are beginning the actual application of their spring-summer sales drives and new consumer promotion and advertising campaigns are getting under way. The majors are of course concentrating actively upon their house brand material in this sales campaign activity.

Kerosene, Tractor Fuels

With stocks of kerosene and tractor fuels generally reputed to be of moderate

(Continued on Page 85)

Crude Oil Prices

(Continued from Page 29)

Humble Oil & Refining Co. and Texas Co. Effective September 20 in Salt Flat by Shell Petroleum Corp.

Rocky Mountain States

Ilea, light (Sept. 29, 1933)	$.96
Ilea, heavy (Sept. 29, 1933)	.90
Florence, Colo. (June 17, 1933)	.80
Fort Collins and Wellington, Colo. (June 17)	(See Salt Creek prices)
Big Muddy (Sept. 29, 1933)	1.01
Frannie, light (May 1, 1934)	.70
Frannie, heavy (Sept. 29, 1933)	.62
Salt Creek and LaBarge (Sept. 29, 1933)	See Stanolind Mid-Continent price schedule
Grass Creek, light (Sept. 29, 1933)	1.18
Grass Creek, heavy (Sept. 29, 1933)	.62
Elk Basin (Sept. 29, 1933)	1.18
Rock Creek (Sept. 29, 1933)	1.02
Lance Creek (Dec. 14, 1932)	.92
Hudson (June 2, 1931)	.65
Lost Soldier (Sept. 30, 1933)	.88
Hamilton Dome, all grades (Feb. 16, 1935)	.57
Torchlight (Sept. 29, 1933)	1.18
Greybull (Sept. 29, 1933)	1.18
Pondera (Sept. 29, 1933)	1.25
Sunburst (Sept. 29, 1933)	1.35
Cat Creek, Montana	1.07
Hogback (Sept. 29, 1933)	1.11
Lea County, N. Mex. (Sept. 29, 1933)	.75
Maljamar (Sept. 29, 1933)	.70
Artesia-Jackson (Dec. 1, 1933)*	.75

Note—Salt Creek, Torchlight, Elk Basin, Grass Creek, Frannie, Greybull, Hogback and Iles by Stanolind Oil & Gas Co. Elk Basin, Grass Creek light, Big Muddy, Rock Creek and Sunburst by Ohio Oil Co. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Lea County, effective September 29, 1933, by Humble Oil & Refining Co. and other buyers; Fort Collins, Wellington, Orchard, Florence, Big Muddy, Cat Creek, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro. Hamilton Dome, Wyo., by Stanolind Oil & Gas Co. Pondera, Mont., by Ohio Oil Co. (Stanolind Oil & Gas Co., effective January 1, 1935, posted $1 per barrel in Pondera.)

*Continental Oil Co.

North Louisiana and Arkansas

Smackover, Ark. (all grades)	$.70
Tullos, Urania, La. (Jan. 13, 1934)	.87
Nevada, Ark. (Sept. 29, 1933)	.60
East El Dorado (Sept. 29, 1933)	.70
Converse, La. (Mar. 17, 1934)	1.02
Elm Grove, La. (Sept. 29, 1933)	.75
Holly, La. (Nov. 17, 1934)	1.02
Pleasant Hill, La. (Mar. 17, 1934)	1.02
Zwolle, La. (Mar. 17, 1934)	1.02
Champagnolle, Ark. (Mar. 17, 1934)	.81
Lisbon, Ark. (Mar. 17, 1934)	1.02
Stephens, Ark. (Sept. 29, 1933)	.70
Urbana, Ark. (Mar. 17, 1934)	.60
Other fields	(See gravity table)

Note—Smackover: Effective September 29, 1933, Texas Co., Magnolia Petroleum Co., Standard of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co. and Phillips Petroleum Co. East El Dorado posted by Magnolia Petroleum Co. and Gulf Refining Co., Nevada by Standard Oil Co. of Louisiana. Urbana posted by H. L. Hunt, Inc., and Louisiana Oil Refining Co. Converse, Holly, Zwolle and Urbana by Standard Oil Co. of Louisiana; Elm Grove by Simmons Oil & Refining Co.; Pleasant Hill by Standard Oil Co. and Magnolia Petroleum Co. Champagnolle by Standard Oil Co. and Lion Oil & Refining Co.

Eastern States

TIDE WATER PIPE CO.
(Effective Feb. 4, 1935)

Bradford, Pa.	$2.35
Allegany, N. Y.	2.35

SOUTH PENN OIL CO.
(Effective Feb. 4, 1935)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field)	$2.35
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.03
Pennsylvania Grade Oil in Eureka Pipe Line lines	1.97
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.87
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (Oct. 1 1933)	1.37

PENNZOIL CO.
(Effective Feb. 4, 1935)

Pennsylvania Grade Oil in National Transit Lines:	
Group A (Includes Cochran, Franklin, Hamilton and Doolittle districts.	$2.37
Group B (Includes Titusville district.	2.36
Group C (Includes Turkey and Tidioute districts.	2.35
Group D (Includes Bear Creek and Porkey districts.	2.34
Group E (Includes Edeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kennerdell, Emlenton, Tiona, Lacey and Kinsua districts. Price depends on length of pipe line haul to plant at Oil City.	2.31

PURE OIL CO.
(Effective Jan. 4, 1935)

Cabin Creek, W. Va.	$1.82
Bradford Hollow, W. Va.	1.83
Kelly Creek, W. Va.	1.77

CREW-LEVICK CO.
(Effective Jan. 4, 1935)

Oil City-Titusville	2.13

Middle Western States

OHIO OIL CO.

Lima (Feb. 1, 1935)	$1.16
Illinois (Jan. 5, 1934)	1.13
Princeton, Ind. (Jan. 5, 1934)	1.13
Plymouth	Shut in
Western Kentucky (May 26, 1934)	1.08
Midland, Mich. (Sept. 30, 1933)*	1.03
West Branch, Mich.	.86
Oceana, Mich. (Oct. 5, 1933)	.90
Somerset, Ky. (Sept. 30, 1933)	1.28

*Posted by Pure Oil Co. and Simrall Pipe Line Co. Producers Pipe Line Co. pays 8 cents per barrel over Pure Oil Co.'s posted prices. West Branch, Mich., posted by Simrall Pipe Line Co. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and posted price includes premium. Oceana posted by Old Dutch Refining Co. and Naph-Sol Refining Co.

Canada

Ontario (September 9, 1933):	
Petrolia*	$2.10
Oil Springs	2.17
Turner Valley (May 21, 1934):†	
Clear naphtha	$2.55
Discolored naphtha	2.37
Crude oil, 50 gravity	2.10
Crude oil, 45 to 49.9	2.07
Crude oil, 40 to 44.9	1.50

*Imperial Oil, Ltd. †Imperial Oil, Ltd. and Regal Oil & Refining Co.

Mexico

Panuco*	$1.01

*F.o.b. ship, based on March transactions and exclusive of production and export taxes and bar dues.

California Crude Oil Prices

STANDARD OIL CO. OF CALIFORNIA
(Effective September 6, 1933)

For current purchases of crude oil at the well (unless otherwise specified). (All gravities above those quoted take highest price offered in that field.)

Gravity—	Long Beach	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda, Brea Canyon	Athens-Rosecrans	Torrance	Richfield	Whittier, La Habra	Montebello	Santa Fe Springs	La Habra-Coyote	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills	Coalinga	Coyote
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	....	$.65	$.65	$.65	$.65	....	$.65	$.57	$.57	$.57	$.65
15-15.9	.65	.65	.69	.69	.66	.69	....	.66	.65	.65	.65	....	.65	....	....	....	.65
16-16.9	.66	.65	.72	.73	.69	.73	....	.69	.67	.68	.65	....	.65	....	....	....	.65
17-17.9	.69	.65	.75	.76	.72	.76	....	.72	.70	.71	.65	....	.68	....	....	....	.68
18-18.9	.72	.65	.78	.80	.76	.79	....	.75	.74	.74	.65	....	.71	.61	.61	.59	.71
19-19.9	.75	.65	.81	.83	.80	.82	....	.78	.78	.78	.65	....	.74	.64	.65	.62	.74
20-20.9	.78	.68	.83	.87	.83	.85	....	.81	.82	.81	.66	....	.78	.67	.69	.65	.78
21-21.9	.81	.72	.86	.90	.87	.88	....	.83	.85	.84	.69	$.72	.81	.70	.73	.68	.81
22-22.9	.84	.76	.89	.94	.90	.92	....	.85	.89	.87	.72	.76	.84	.73	.76	.72	.84
23-23.9	.88	.81	.92	.97	.94	.95	$.83	.89	.92	.90	.76	.79	.87	.77	.79	.75	.87
24-24.9	.91	.85	.95	1.01	.97	.98	.86	.92	.97	.93	.80	.83	.90	.81	.82	.78	.90
25-25.9	.94	.89	.98	....	1.00	1.01	.90	.95	1.00	....	.85	.87	.93	.85	.85	.81	.93
26-26.9	.97	.93	1.01	....	1.04	1.04	.94	.98	1.04	....	.89	.90	.96	.89	.88	....	.96
27-27.9	1.00	.98	1.04	....	....	1.07	.97	....	1.08	....	....	.94	.99	.93	.91	....	.99
28-28.9	1.03	1.02	1.07	....	....	1.10	1.01	....	1.11	....	....	.98	1.02	.97	.94	....	1.02
29-29.9	1.06	1.05	1.09	....	....	....	1.04	....	1.15	....	....	1.01	1.05	1.01	.97	....	1.06
30-30.9	1.09	1.10	1.12	....	....	....	1.08	....	....	....	....	1.05	1.09	1.05	1.00	....	1.09
31-31.9	....	....	....	....	....	....	1.12	....	....	....	....	1.08	1.12	1.09	....	....	1.12
32-32.9	....	....	....	....	....	....	1.15	....	....	....	....	1.12	1.15	1.13	....	....	1.15
33-33.9	....	....	....	....	....	....	....	....	....	....	....	1.16	1.18	1.17	....	....	1.18
34-34.9	....	....	....	....	....	....	....	....	....	....	....	1.19	1.21	....	....	....	1.21
35-35.9	....	....	....	....	....	....	....	....	....	....	....	1.23	....	....	....	....	....
36-36.9	....	....	....	....	....	....	....	....	....	....	....	1.26	....	....	....	....	....
37-37.9	....	....	....	....	....	....	....	....	....	....	....	1.30	....	....	....	....	....
38-38.9	....	....	....	....	....	....	....	....	....	....	....	1.34	....	....	....	....	....

Additional Standard Oil Quotations

Mountain View—Effective July 3, 1934, the following are the prices of the Standard Oil Co. of California for its current purchases of crude oil at the well in the Mountain View Field: 14 to 19.9 degrees, 57 cents; 20-20.9, 58 cents; 21-21.9, 59 cents; 22-22.9, 61 cents; 23-23.9, 63 cents; 24-24.9, 66 cents; 25-25.9, 69 cents; 26-26.9, 72 cents; 27-27.9, 75 cents, 28-28.9, 78 cents; 29-29.9, 81 cents; 30-30.9, 84 cents; 31-31.9, 87 cents; 32-32.9, 90 cents; 33 degrees and above, 93 cents.

Elwood Terrace—F.o.b. ship, 33 degrees, $1.03; 34 degrees, $1.06; 35-35.9, $1.09; 36-36.9, $1.12; 37 degrees and over, $1.15.

Newhall—14 degrees and over, 57 cents.

McKittrick and Kern River—14 degrees and over, 57 cents.

Wheeler Ridge—14 to 17.9 degrees, 57 cents; 18-18.9, 58 cents; 19-19.9, 61 cents; 20-20.9, 64 cents; 21-21.9, 67 cents; 22-22.9, 70 cents; 23-23.9, 73 cents; 24-24.9, 76 cents; 25 degrees and over, 79 cents.

Kettleman Hills—32-32.9 degrees, 93 cents; 34-34.9, 96 cents; 35-35.9, 99 cents; 36-36.9, $1.02; 37-37.9, $1.05; 38-38.9, $1.08; 39 degrees and over, $1.11.

The Texas Co. posted in Shiells Canyon, South Mountain and Santa Paula as follows: 14 to 17.9, 57 cents; 3 cents added for each degree up to and including 26-26.9 degrees at 84 cents; then 4 cents added for each degree up to and including 30 degrees and over at $1. Company posts Standard Oil Co.'s Montebello prices in Montebello and North Whittier, and posts Standard Oil Co. prices in Signal Hill, Alamitos Heights, Huntington Beach, Torrance, Richfield and Santa Fe Springs, all effective September 6.

General Petroleum Co. posts Standard Oil Co. prices in Athens, Rosecrans and Signal Hill; Alamitos Heights up to 26-26.9; Santa Fe Springs up to 35-35.9; Richfield up to 25-25.9; Brea Canyon and Olinda up to 25-25.9, and Torrance up to 25-25.9.

Union Oil Co., effective September 6, posts same price as Standard Oil Co. in all fields in which both purchases, excepting that in Athens-Rosecrans, Union Oil Co. posts 21-21.9, 72 cents, and 38--33.9, $1.18; 34-34.9, $1.21, and 35-35.9, $1.24.

Associated Oil Co., effective September 6, posted same prices for the same grades as Standard Oil Co. of California, excepting that in some fields its gravity scale stops as follows: Huntington Beach, 26 degrees and over; Seal Beach and Alamitos Heights, 30 degrees and over; Coyote Hills, 33 degrees and over; Richfield, 25 degrees and over; Torrance, 25 degrees and over; Inglewood, 24 degrees and over; Santa Fe Springs, 35 degrees and over; Midway-Sunset, Elk Hills, Buena Vista Hills, 30 degrees and over. Also Associated pays 52 cents for oil of 11 to 13.9 gravity in McKittrick, Kern Front, Kern River, Midway-Sunset, Elk Hills, Buena Vista Hills and Coalinga.

Is this costing you money?

● It's all right to curtail plant expenditures in the face of emergencies. But it's dangerous to maintain the strangle hold until the victim is dead. Don't let "thumbs down" become a habit.

When your plant engineer asks for materials let him present his case in full. Stop and think it out with him. Get the facts before you say no. We urge upon the executive an immediate check up of his plant as an insurance against over-economizing—a malady whose cost is deadly, a cost you can't capitalize, a loss you can't retrieve.

In a Massachussetts institution, $750 for Crane pipe and fittings cured over-retrenchment in the nick of time and is saving $2,300 a year; $40 worth of Crane equipment is saving $50 a month for a Pennsylvania coal mine. There are thousands of similar instances of savings.

If you have installed, or are now installing new equipment, how about the pipe lines and their accessories? You can't use the new equipment efficiently unless you build a good sound piping system.

Crane recognizes the continuing need for economy. All it asks is a conscientious survey of plant and equipment to make sure that valves, pipes and fittings are adequate—providing proof against waste and losses that inflate production costs. We will send you without obligation our Plant Check list. Write for it today.

CRANE

CRANE CO., GENERAL OFFICES: 836 SOUTH MICHIGAN AVENUE, CHICAGO, ILLINOIS · NEW YORK: 23 WEST 44TH STREET

Branches and Sales Offices in One Hundred and Sixty Cities

VALVES, FITTINGS, FABRICATED PIPE, PUMPS, HEATING AND PLUMBING MATERIAL

NEWS FOR PETROLEUM REFINERS

Panhandle Refining Co. Purchases Paragon Plant

The properties of Paragon Refining Co., consisting of a refinery at Lueders, Jones County, Texas, and pipe lines into the adjacent oil field in Shackelford County, have been purchased by the Panhandle Refining Co. of Wichita Falls. The Paragon company was owned by the Freeman-Hampton Oil Co. of Wichita Falls and J. C. Hester of Lueders. Improvements will be begun immediately on the plant, enlarging its capacity to take care of the local demand for Panhandle products in that territory. Equipment will be moved from Wichita Falls for that purpose. An extension in the pipe line system has been started to supply the enlarged refinery.

J. C. Hester, who has been in charge of operations for the Paragon company, will continue as superintendent of the plant. W. F. Sims, refinery manager, and G. W. Reed, general sales manager for Panhandle, are in Lueders arranging the transfer.

The Panhandle Refining Co. owns and operates two additional plants at Wichita Falls and Kings Mill, Tex.

New Package Markings Allowed for Used Oils

Marketing Committee "D" recommends the adoption of a resolution concerning the marking of used or reclaimed oils provided under Article V Rule 25 of the Code of Fair Competition for the Petroleum Industry. The rule has stated that the package or container of such oil must be conspicuously marked "Used Oil" or "Reclaimed Oil." The exception is granted as follows:

"Upon the presentation to the Petroleum Administrative Board of a certificate from a commercial laboratory listed in the Bureau of Standards Miscellaneous Publication 90, or from a laboratory recognized by the Bureau of Standards as similarly qualified, stating that any particular type of oil produced from used oil complies as finally offered for sale with the requirements of Federal Specifications VV-O-496, including the earning of one credit for neutralization number, and upon the presentation to the aforesaid board of satisfactory evidence that the oil as finally offered for sale is considered taxable under Section 601 (c) (1) of the Revenue Act of 1932, as amended, permission may be granted by the Board to mark conspicuously the package or container from which the oil is sold in such a manner as to indicate clearly that the oil is produced by a refining process from used oil. Any such permission may be withdrawn by the board upon the presentation, by any one, of such evidence as shall convince the board that the requirements set out above are not being fulfilled. All such permissions are temporary and may be cancelled with or without the adoption of conflicting regulations."

CRYSTAL CRUDE TEST

Crude oil tested in the Detroit Testing Laboratories and taken from the new Crystal wildcat well in the Crystal Pool of Michigan shows a gravity of 44.6 and is said to yield a motor fuel of higher octane value than other Michigan crudes taken from the Dundee sands. A Hemple analysis of the crude indicated a yield of 36.6 per cent gasoline with the vapor temperature at 395° F. when the cut was completed.

MEET FREIGHT ADVANCE

To cover the increase of 1 cent a hundred pounds in freight rates on petroleum products Standard Oil Co. (Indiana) adjusted its prices on motor gasoline, kerosene and Stanolex fuel oil up one-tenth of a cent at many points in its territory, effective April 18. At many other points where there is no change in rates or where the change amounts to less than a tenth of a cent per gallon there was no change in product prices. Chicago is one of the points not affected.

Canadian Tariff Question Causes Refiners Uncertainty

The recent sitting of the federal tariff board at Regina, Saskatchewan, to hear representations with reference to the tariff on gasoline, and the widespread agitation in the Canadian West with reference to gasoline prices, has aroused considerable uncertainty, particularly among the smaller refiners, as to the outlook for the industry.

At the present time, the federal government imposes a general tariff of 2½ cents a gallon on gasoline imports. Most of these come from the United States. This tariff is a comparatively recent one, and has had a tendency to reduce imports of gasoline and to encourage the establishment of small refining plants at strategic points. These refineries draw their crude supplies almost entirely from the United States, and those in the western provinces are supplied with crude chiefly from the Montana fields. Thus the tariff on gasoline imported into Canada has had the effect indirectly of providing a market and to some extent maintaining prices for Montana crude.

The United States is the major source of crude oil supply for all Canadian refineries, supplemented by imports from Peru and Colombia. The British Columbia refineries draw their crude chiefly from Peru. Plants in the prairie provinces are supplied from Montana and Wyoming.

The Canadian crude oil supply represents only a small fraction of the requirements of Canadian refineries, approximately two weeks' supply. Production in eastern Canada, chiefly in southwestern Ontario, approximates 140,000 bbls. a year, so that the area east of the Great Lakes is almost entirely dependent on imported crude. Production in western Canada, chiefly from the Turner Valley Field in Alberta, was last year about 10 times as much. It is, however, mostly crude naphtha, of high volatility, and the heavy evaporation loss in transit and transportation costs limit the area in which it can be utilized economically and yet yield a fair price to the producer. The Alberta production of crude is, in any event, little more than half the gasoline consumption of the immediately adjoining provinces of Alberta and Saskatchewan; so that even these areas require large imports of crude. Refineries in Alberta and Saskatchewan have an aggregate charging capacity of 29,125 bbls. a day, while the average crude output of Alberta is around 3,300 bbls. a day. The refining plants, however, have not been operating to capacity, the largest, that of Imperial Oil Refineries, Ltd., at Regina, having been shut down recently.

TAX INCREASE KILLED

By a vote of 26 to 17 the Pennsylvania senate has killed a bill which would have increased the state's 3-cent per gallon gasoline tax to 5 cents per gallon. The bill, which had previously passed the house by a vote of 113 to 87, would have cost motorists an additional $40,000,000 during the next two years.

The bill, one of several revenue measures drawn up by Governor Earle, met with immediate opposition. A petition signed by 500,000 motorists, protesting against the increase was presented to the house ways and means committee.

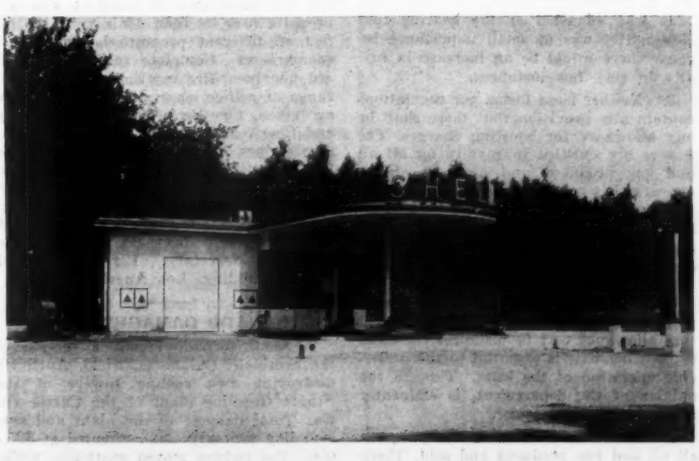
CHAMPLAIN OIL PRESIDENT

MONTREAL, Quebec, April 20.—Major F. T. McKeen, formerly Montreal representative of Imperial Oil, Ltd., has been elected president of Champlain Oil Products, Ltd. He succeeds Harry Snyder, who becomes chairman of the board.

ARCHER SELLS PLANT

The Archer Refining Co. at Megargel, in North Texas, has sold its 1,500-bbl. skimming plant at that place, to White and Duncan, who have incorporated and changed the name of the company to operate the plant, to the Plains Gas & Fuel Co., Inc.

Shell Adopts Practical Design for German Station



One of the latest type filling stations abroad

Plan Two New Refineries for Rio Grande District

Announcement of the building of two new refineries in the lower Rio Grande Valley of Texas has been made by Ralph Fair of Houston. The refineries which are to undergo construction immediately will consist of a cracking plant to handle the low gravity Sam Fordyce crude, and a skimming plant to utilize Starr County crude.

Mr. Fair, representing large Houston interests, said a cracking plant to cost about $250,000 would be built at Harlingen and that a skimming plant would be constructed west of Sullivan City, in western Hidalgo County, at a cost of $100,000. It was not announced whether sites for the two plants have been obtained.

It is understood that work on both plants is to get under way within a short time, arrangements having been completed for both units. Mr. Fair is represented in the valley by George Holland and Mr. Summers.

Mr. Fair, who is associated with Col. J. F. Lucey in production from 60 wells in East Texas and who was advised while on a recent visit in the valley of completion of a 2,500-bbl. well on some of his holdings in Rumania, has operated in various Texas fields for the past several years. His new well in Rumania is located on a 5,000-acre block and is producing from a depth of 4,300 feet.

FEBRUARY EXPORTS

The following statistics of exports of petroleum and its products for the month of February, 1935, are furnished by the United States Department of Commerce:

Exports—	February 1934	February 1935
Petroleum	2,510,892	2,804,334
Natural Gasoline	77,289	77,181
Gasoline, naphtha	1,771,733	1,091,999
Illuminating oil	716,495	441,302
Gas oil	1,009,463	430,012
Res. fuel oil	821,401	962,232
Lubricating oil	453,222	403,599
Greases (lbs.)	6,018,913	6,653,381
Paraffin Wax (lbs.)	16,454,544	14,439,397
Asphalt (tons)	11,931	15,880
Coke (tons)	1,870	11,562

PHILLIPS ADDRESS GEOLOGISTS

At the regular weekly luncheon of the Houston Geological Society, May 25, Dr. B. M. Phillips, superintendent of the Texaco fuller's earth plant, will be the principal speaker. His subject is "Preparation and Utilization of Texas Fuller's Earth."

REFINERIES CHANGE OWNERSHIP

Heath Refining Co. is now operating a 2,500-bbl. skimming plant on the Isley farm, in the G. A. Thompson Survey, on the Texas & Pacific Railroad, Gregg County, East Texas Field.

REFINERY TO BE DISMANTLED

Announcement was made recently of the sale of the Sapulpa, Oklahoma refinery of the Continental Oil Co. to the Brown-Strauss Corp. of Kansas City. The refinery will completely be dismantled by the new owners and sold piecemeal. The refinery was originally built by the Sapulpa Refining Co., and was taken over by the Continental Oil Co. in 1926.

PETROLATUM NOT TAXABLE

The American Petroleum Institute has received a ruling from the Bureau of Internal Revenue that petrolatum is not a lubricating oil under Section (c) (1) of the Revenue Act of 1932, and may therefore be sold tax free without an exemption certificate.

NATURAL GASOLINE MANUFACTURE

Pressure Bases for Gas on Indian Lands Unchanged

On October 18, 1932, the Department of the Interior approved instructions to the director of the Geological Survey regarding casinghead gas regulations applicable to Indian allotted lands in western Oklahoma. Upon being notified by the oil and gas supervisor to comply with these instructions, or regulations, the Deep Rock Oil Corp., holder of a number of oil and gas leases of Indian lands, filed an appeal, and subsequently the Mid-Continent Oil and Gas Association filed an intervening brief.

Pursuant to requests from the appellant, intervener, and other interested parties an oral hearing before the department was held July 17, 1933, and the interested parties thereafter submitted a joint brief.

The appellant states that there are five distinct matters involved in the appeal as follows:

1. Proposed change in the pressure base in measuring dry and residue gas from 2 pounds to 10 ounces.
2. Proposed change in the pressure base in measuring casinghead gas from 4 to 10 ounces.
3. Proposed change in regulations disallowing boosting charge.
4. Denial of right of manufacturer to deduct 50 per cent of net proceeds from sale of residue gas.
5. Denial of right of natural gasoline manufacturer to use residué gas for plant fuel.

These points, or matters, will be considered in the order presented.

1. The testimony taken at the hearing tended to show that in commercial and departmental leases in the Mid-Continent Field there was an established custom in the measurement of dry and residue gas to use 2 pounds as the pressure base, and that to use a pressure base of 10 ounces was equivalent to an increase of 9.15 per cent in royalty. The testimony also tended to show that a change in the pressure base would render necessary additional bookkeeping and office work.

Prior to the instructions of October 18, 1932, there was no specified pressure base upon which royalty settlements were made, as neither leases nor regulations contained any provision on the subject. It may have been the general practice in the Mid-Continent Field to use a 2-pound pressure base, but leases of Osage Indian lands and of public lands have the 10-ounce pressure base, and for the sake of a definite and uniform practice it is desirable that said pressure base be made applicable generally. Where settlements have been made, and if there are existing contracts, on the 2-pound basis these matters may properly be taken into consideration and such adjustments may be made as will save lessees from paying the equivalent of higher royalties than those fixed in their leases.

It is not believed that the expenses of additional bookkeeping and office work will be such that they should be allowed to stand in the way of a needed reform. At the most the additional work will be temporary and probably of brief duration.

2. Whether the pressure base in measuring casinghead gas is fixed at 4 ounces or 10 ounces, the gasoline content is not changed, so that the royalty remains the same. On this point the Geological Survey says:

"It is possible in exceptional cases that when a gasoline content test is made on a 10-ounce pressure base, the result would be slightly higher under the sliding scale royalty rates than where the same test made on the 4-ounce base, as the actual royalty rate to the Indian lessor, under the lease terms and the regulations, is 2.5 per cent when the gasoline content of the gas is 0.50 gallon per 1,000 cubic feet or less, 3.12 per cent when the gasoline is between 0.51 and 1.50 gallons per 1,000 cubic feet, and 4.17 per cent when the gasoline content is over 1.50 gallons per 1,000 feet. These low rates of royalty to the lessor are the result of allowing the casinghead gasoline manufacturer 80 per cent, 75 per cent, and 66⅔ per cent, respectively, of the gasoline extracted, free from royalty. It is therefore apparent that there will be no appreciable increase in the royalty value to the Indian lessor even in the few isolated cases where conditions described above might exist. In these cases the actual royalty rate specified in the lease, namely, one-eighth or 12½ per cent, is not altered and only that portion of the gasoline on which the royalty rate is to apply is changed."

It was admitted at the hearing that this matter was of small importance because there would be an increase in royalty in very few instances.

3. Neither lease forms nor regulations contain any provision that there shall be any allowance for boosting charges. The lessors are entitled to royalty on all oil and gas produced and disposed of. It appears that often boosting of dry gas is required, and pumping of oil from wells is necessary, but the costs of these operations are not taken out of the royalty of the lessors. There is no more reason why lessors should be required to pay boosting charges on residue gas in ordinary circumstances. But it will be noted that allowance may be made for the costs of boosting if it is essential to the profitable operation of the lease. This, in the opinion of the department, is eminently fair to lessee and lessor.

4. The lessor is entitled to royalty on all oil and gas produced and sold. There

(Continued on Page 86)

Automotive and Refinery Engineers to Collaborate at N.G.A.A. Convention

The symposium on motor fuel volatility trends and the effect on automotive engine design and performance promises to be the outstanding feature of the fourteenth annual convention of the Natural Gasoline Association of America, meeting in Tulsa, Okla., May 1, 2, 3, 1935.

Though refinery motor fuel experts and automobile engine designers have worked jointly at their mutual problem for some time in the comparative quiet of committee rooms under the auspices of other national organizations, this will be the first time they have met on the same platform in the Mid-Continent area for an open discussion. Each of these two great groups is intensely interested in the activities of the other since either can retard a mutual progress unless there is a thorough understanding and complete co-operation between them.

From the refiner's standpoint, the principal subject for discussion is the proper design of intake systems on modern cars to permit the proper use of the fuels now being marketed. It is their contention that much of the increased efficiency and power of present fuels is being wasted or completely lost through the partial failure of the automotive designer to construct a fuel system that will make full use of them. On the other hand, the automobile men find much to criticize in the average motor fuel, and it is the average fuel which they must consider since they build their cars for operation in any locality. They frankly admit that the more vollatile fuels now being offered to the public by refiners are capable of bringing about better car performance, but until there is some uniformity or stabilization on a national scale they are forced to make changes in their fuel systems slowly.

In addition to the speakers previously named in the advance program, the symposium is expected to attract other automotive and refining men. John M. Campbell and Wheeler G. Lovell, assistants to T. A. Boyd, General Motors Corp., and co-authors of the paper, "Automotive Design as Related to Fuel Volatility," will possibly attend. Gilbert Way of the Chrysler engineering staff will accompany J. B. Macauley, chief engineer of the Chrysler Division, Chrysler Corp. A. D. Bauer of the Standard Oil Development Co. will participate in the refinery discussions.

Standard Pressure Base for Natural Gas Measurement

Confusion is frequently encountered when comparing or computing gas volumes measured by orifice meter because of the different absolute pressures and pressure bases in common use. With the objective of eliminating confusion and arriving at a standard by which a cubic foot of gas is definitely specified, so that measurements at any place, or any elevation, can be given in terms of that cubic foot, the California Natural Gasoline Association published its Bulletin S-282 on an "Absolute Pressure for Natural Gas Measurement" (revised April, 1929).

The product of a committee headed by F. E. Huff of the Standard Gasoline Co. and made up of representatives of 14 California companies, the publication is complete with all of the data necessary for field application. Describing in detail the importance of using an absolute pressure base, it then deals with the effect of different pressure bases on fuel comparisons. Complete tables of standard hourly orifice coefficients for a full range of orifice sizes and pipe diameters are given, together with specific gravity and flow temperature multipliers. Calculated values of Cv for 2½ and 8 diameter line and flange connections are shown, along with two tables of computed barometric pressures for various elevations.

Copies of this bulletin are available at 25 cents each, postpaid, through the C.N.G.A. Secretary, 1217 Associated Realty Building, Los Angeles, Calif.

TORNADO DAMAGES PLANT

A small tornado struck a section of the Seminole, Oklahoma, Field, April 19, destroying two cooling towers of the Stuart Gasoline plant of the Carter Oil Co. Total damage to the plant and surrounding property was estimated at $25,000. The twister moved southwest striking another camp.

C.N.G.A. Forms Committee on Engines, Compressors

Augmenting its technical program to include one of the most important and ambitious studies yet attempted, the California Natural Gasoline Association has just formed a committee on gas engines and compressors. This body, under the chairmanship of Lyman Scheel, of the Union Oil Co., and the vice chairmanship of R. S. Ridgway, of the Standard Gasoline Co., will immediately inaugurate its activities by: (1) Preparing a complete glossary of terms used in connection with engines and compressors; (2) the compilation of horsepower curves, such as the Weymouth curve, with curves and constants for the value of N for various gases and for various conditions of operation; and (3) the standardization of methods of rating engine horsepower.

Messrs. Scheel and Ridgway bring to the committee a thorough training and wide experience in their respective lines. Mr. Scheel graduated from the University of Nebraska in 1925 as a mechanical engineer, and received recognition by the Sigma Xi engineering fraternity for his work at a government helium plant. He has been with the Union Oil Co. of California continuously since his graduation, and is also a member of Sigma Tau and the American Society of Mechanical Engineers.

Mr. Ridgway graduated as a mechanical engineer from the California Institute of Technology in 1925, and has been employed continuously by the Standard Gasoline Co. since then. He is a member of Tau Beta Pi.

The members of the committee are: Lyman Scheel (Union), chairman; R. S. Ridgway (Standard), vice chairman; F. M. Awalt (Waukesha Motors); M. E. Garrison (General Petroleum); E. W. Hammond (Worthington Pump Co.); A. K. Hegeman (Smith-Booth-Usher); J. Herron (Shell) Grove Lawrence (Southern California Gas); F. A. E. Lowell (Del Rey); A. C. Lyles (Kenda); J. W. Reed (Cooper-Bessemer); John Rogers (Ingersoll-Rand); John Sutor (Thomas Machine Co.); J. E. Wallace (Ind. Fuel Supply); and N. C. Wells (Texaco).

Liquefied Gases Sold for Nonmotor Use Not Taxable

In answer to an inquiry concerning the taxability of liquefied petroleum gases, the Bureau of Internal Revenue has issued the following ruling:

"Where propane is advertised and sold for domestic and industrial purposes and not for motor fuel purposes, it is held that such product may be sold tax free without the necessity of obtaining exemption certificates from the purchasers. It is also held that butane sold in cylinders to consumers for domestic heating and burning purposes and for industrial purposes may be sold tax free without the necessity of securing exemption certificates from the consumers. Butane sold in bulk to consumers or dealers for use or resale for nonmotor fuel purposes, may be sold tax free provided the producer obtains from the purchaser prior to or at the time of sale an exemption certificate certifying that such product is purchased for nonmotor fuel purposes. Where butane is sold in cylinders to dealers such product may be sold tax free provided the dealers furnish the producer, prior to or at the time of sale, with an exemption certificate certifying that the product is purchased for resale for domestic and industrial purposes and not for motor fuel purposes."

Strong Gasoline Tone Continues at Chicago

(Continued from Page 81)

or even quite limited extent, and with an increasingly insistent call for these products from the marketing trade in the rural regions, these items are getting steadily into a stronger market position. Prices on kerosene are firm to a shade stronger in some cases. Shipping instructions are becoming rather heavy. On tractor distillates, prices for better material are following motor gasoline closely in some cases.

Furnace Oils

Furnace oils have been having a rather active late-season call. Prices in the tank car market have been surprisingly firm, with few sources willing to quote on much material. End of the season is near now, however, it is felt.

Industrial Products

The heavy industrial oils are mostly holding their own. This applies especially to fuels, for which there is a fair demand from the steel industry and other large consumers. However, in the case of industrial gas oil, demand is less active and tone a shade easier.

Lubricants

Lubricants are quiet, with the price structure open to varied reports. Basic lubricant markets continue somewhat unsettled. The demand for motor oil is reported opening up fairly well, however.

Wax

With a slightly better demand noted here and there for wax, there is now a little better feeling as to the market for this product, although it is still rather draggy. Prices are unchanged.

Naphthas

Naphthas and solvents have been quiet. Buying has been of a routine, slow nature and few features have been encountered. Blending naphtha has been in good demand.

Coke

Coke continues dull and rather backward at this season.

Corrosion, Its Nature and Effect on Equipment

(Continued from Page 20)

the zinc. It is to be presumed also that galvanized tubing will reduce casing corrosion considerably.

Before purchasing galvanized tubing, it is advisable to try the use of heavy grease on the threads of pipe while making up. This will tend to insulate each joint of pipe and confine electrolysis to the point at which it is started. By installing galvanized tubing at these particular points the trouble may be stopped.

The use of air lift in a well should be avoided under any condition, if at all possible, as the corrosion rates will be accelerated and extremely high, due to the presence of atmospheric oxygen, especially in the presence of salt water or hydrogen sulphide. Products of corrosion will fall to the bottom of the well causing screen and liner trouble. They will also settle in flow lines and tanks and cause trouble in this portion of the system.

(d) Sucker Rods—These are subject to electrolysis and corrosion fatigue. In the former case, when trouble is experienced with corrosion destroying threads in the boxes and pins, the use of a heavy grease, while making up, will often be responsible for its reduction or elimination.

Galvanizing has been tried, but without success, due to the fact that the stretching of the rods is so great as to cause the zinc to fall off the rods. Other coatings have been tried, such as lead, varnishes, et cetera, but their mechanical weakness has resulted in abandonment. Lead is cathodic to steel and, unless a perfect non-porous covering is preserved, will cause accelerated and serious pitting.

Corrosion fatigue may occur with no sign of rod corrosion visible to the eye. It is prevalent in sour oils, and can be recognized by the characteristic type of rod break, this being clear cut and usually showing a black half moon of iron sulphide at the point at which failure started. The use of wrought iron, or of soft, low carbon steel, rods in sulphur oils is recommended and has proven satisfactory. From observations made in the Salt Flat Pool, it was concluded that high manganese and carbon content in the steel seemed to increase the tendency to fail through corrosion fatigue. It is probable that, during the manufacture of the steel, manganese dioxide is produced. This is extremely rich in oxygen and is used as a depolarizer in the common, dry battery. This depolarizing effect will stimulate local corrosion at any point at which the oxide is present on the surface. The sulphur then will act on the newly exposed metal to form iron sulphide. This process will continue and cause a progressive fracture—almost invariably at right angles to the direction of load, since the metal pores will tend to pull apart and allow the action to progress.

No way has been found to protect the metal from this action. By reducing loads and number of reversals (by long, slow strokes) trouble may be very greatly reduced. It was found that even in cases where there was a reduced pump output per stroke at low speeds, the result was greater monthly production due to the elimination of much of the down time experienced with shorter and more rapid strokes. Trouble was also reduced on pump valves for the same reasons.

(e) Pumps—In troublesome wells, pitting of balls and seats may be reduced by the use of high grade stainless steel.

In cases where magnetism makes bronze balls necessary, the bronze ball, being cathodic to steel, may cause pitting of the seats unless the latter are of stainless steel. However, if the steel alloy is sufficiently high in chromium, the reverse action may follow, since chromium is cathodic to brass.

(5) Pipe Lines

These may be subdivided as follows:

(1) Oil lines.
(2) Gas lines.
(3) Water disposal lines.

(a) Oil Lines—As with tankage, exclusion of oxygen is necessary although this is a negligible problem in most cases.

In order to reduce corrosion, it is advisable to keep lines as full of fluid as possible. The use of as small lines as practicable is recommended in order to increase flow velocities to a point where settling of scale in the line is minimized. Leaking lines will cause external corrosion, in many cases. Care should be taken, where possible, to run flow lines as far as possible from salt water pits.

On electrically pumped wells, especially in dry areas, such as West and parts of Southwest Texas, care should be used to see that adequate electrical grounding is provided on transformer and machinery installations and also that pipe lines do not pass too close to these grounds. The low resistance path to ground provided by pipe line systems will permit passage of stray currents which will tend to increase corrosion rates greatly. The use of victaulic pipe will increase the resistance of pipe lines and tend to minimize these troubles, since the joint does not provide a good metal to metal contact.

(b) Gas Lines—Under pressure, sweet gas lines in the field are little subject to serious corrosion troubles. Leaks should be avoided, since moisture in the gas will cause rusting, and, in sour gas, severe sulphide corrosion.

Under vacuum, oxygen content, especially with hydrogen sulphide gases, may cause greatly increased internal corrosion. The percentage of oxygen should be watched on these lines, and all possible

Figure it yourself

Do you want to know how long it will take for the right cracking unit to pay for itself in your refinery?

It will cost you nothing to find out—

Ask Parsons.

Tell him the present yield of gasoline from your crude—and its octane rating.

He will tell you how much a Parsons-built Dubbs unit to fit your needs will cost, how much it will increase yield and improve octane.

Then you will know how much more gasoline you will have to sell and how much more per gallon you can get for it.

You can figure the answer for yourself.

Parsons-built Dubbs units are guaranteed—by Universal as well as by Parsons.

PARSONS

THE RALPH M. PARSONS CO.

MT. VERNON, OHIO LOS ANGELES

GLOBE'S newest refinery, located at McPherson, Kansas, is one of the most modern in America. Here Globe's customers, Independent Home Owned Jobbers, have a reliable source of supply and the friendly support of a fair dealing, Independent Refiner.

Globe's good petroleum products, known far and wide for their world of Quality, make staunch friends of home owned distributors. The honest merit of Globe Gasoline is instantly recognized by motorists everywhere.

Globe assists their Independent Jobbers with a well planned advertising and merchandising program that really gets sales for the Jobber.

The Globe Oil *and* Refining Company

Producers and Refiners

SALES OFFICES:
BROWN BUILDING
WICHITA, KANSAS
59 E. VAN BUREN ST.
CHICAGO, ILLINOIS
2424 UNIVERSITY AVE., S. E.
MINNEAPOLIS, MINN.

REFINERIES:
BLACKWELL, OKLAHOMA
McPHERSON, KANSAS
LEMONT, ILLINOIS

done to eliminate it. The oil film deposited on the pipe by wet gases will tend to reduce corrosion, in most cases.

(c) Water Disposal Lines—On salt and sulphur water disposal lines more rapid corrosion occurs than on any other service in the field. Glazed tile has been used for gravity lines and has been fairly successful, but trouble has been experienced with it, due to the fact that the temperature of disposal water varies so widely and that such lines are mechanically weak. For pressure lines Armco Iron, galvanized iron, wrought iron, cast iron, and, in fact, practically all types of pipe have been used, mostly with rather negative results. The fact that main lines are fed from open pits, in many cases, and the water is aerated, causes extremely severe corrosion losses. Cement and cement lined pipe have been tried and seem to be the most promising possibility. Under industrial conditions and in the oil fields, this type of pipe has given good results and it is recommended as being the most likely to give the maximum of service. With cement lined pipe it is important that all joints be water tight, or severe external corrosion will add to problems already troublesome.

Conclusions

Since this paper has been prepared with the purpose in mind of presenting in as simple a manner as possible theory and practice in relation to a highly complicated subject, no definite general conclusions are offered.

Each section dealt with, however, is as complete a summary of a number of the experiences of many authorities as possible to present in so short a space.

The author would like to acknowledge his indebtedness to various individuals for assistance given and suggestions made during the preparation of this paper. Of particular assistance in the bibliography studied have been the following: "Corrosion—Its Causes and Prevention" by Speller, and various articles published in trade papers of recent years on the subject of corrosion by a large number of authorities. Miscellaneous Reports of Investigation of the United States Bureau of Mines have also been of invaluable assistance.

Pressure Bases for Gas on Indian Lands Unchanged

(Continued from Page 84)

is no valid reason why any part of the net proceeds from the sale of residue gas should be deducted for the benefit of the manufacturer and thus reduce the royalty of the lessor. If any practice of this kind obtains in any locality it is not of such general use that the department will consider itself bound thereby.

5. There is no provision in the lease forms or the regulations that any portion of the residue gas may be used by gasoline plants for fuel purposes, royalty free. But the department is not disposed to refuse the use of a reasonable amount of dry or residue gas for plant operations. It is only fair that the oil and gas supervisor or his deputy should pass upon and determine the question of "reasonable amount" in such cases. Lessees have the right of appeal to the department when they are aggrieved by rulings and orders.

Much has been said at the hearing and in the briefs about the effect that the instructions, or rulings, will have on future leasing operations on Indian lands. That question is not part of the appeal. The department, through the Office of Indian Affairs and the Geological Survey, has carefully considered the action taken; in fact, before the instructions were issued it had been determined that a definite interpretation would be for the good of the Indians, the oil industry, and the Government.

The appellant and interveners have asked that if the proposed changes are to be made effective finally they be operative only from July 17, 1933, and not be retroactive and applicable as of November 1, 1932.

The department has heretofore declined to hold the instructions suspended to await final determination, and there is no good reason why they should now be held operative only from July 17, 1933. In the department's opinion, no lessee, operator, or manufacturer is being deprived of any legal right, and the ruling may and should properly be operative from and after November 1, 1932, the first day of the calendar month following the ruling.

The instructions, or rulings, of October 18, 1932, are sustained.

Government Extravagance Topic at N.P.A. Meeting

(Continued from Page 11)

cal and require close adherence to specifications. Refiners who do not inquire into the opportunities available in the growing Diesel field are overlooking an important source of profit.

Paul J. Eakin, financial analyst, in his paper, "Shall We Pay as We Go?" pointed to the huge national debt which is piling up under a paternalistic government as the most serious threat which the country has ever faced.

H. L. Horning, president of Waukesha Motor Co., who was to have presented a paper on lubricating oil stability, was unable to attend the meeting. Fred G. Clark, organizer of the Crusaders, now engaged in combatting extravagance in government, outlined the purposes of the organization and stressed the need for concerted opposition to visionary projects for which the administration in Washington and in the various states are draining the resources of business and industry.

At the fellowship supper in the Hermit Club, Major James Fawcett, president of Crystal Oil Refining Works, addressed those present as a charter member of the National Petroleum Association reviewing the growth of the association. Charles L. Suhr introduced Robert S. King, recently appointed president of the Penn-oil Co., who goes to Oil City this week to take up his duties.

SUMMARY OF STATEMENTS MADE APRIL 10, 1935, RELATING TO BUSINESS OF VARIOUS PIPE LINES FOR MONTH ENDING MARCH 31, 1935

	Gross stocks	Runs from wells	Other receipts	Regular deliveries	Other deliveries
Nat. Transit	451,658.43	284,869.60	865,824.04	565,596.48	566,366.64
S. W. Pa. P. L.	405,710.64	78,148.32	755,907.96	500,863.50	312,428.33
Eureka P. L.	890,543.86	274,706.48	269,271.96	280,511.36	245,512.06
Buckeye P. L. (Macksburg)	251,760.62	235,966.86	170,347.35	298,343.31	116,220.54
Buckeye P. L. (Lima, etc.)	2,217,384.44	59,690.60	2,023,527.30	1,183,714.79	845,702.57
Buckeye P. L. (Cleveland)	44,089.08	11,190.68	231,734.58	1,460.24	239,513.36
Indiana P. L.	395,510.32	.....	1,329,578.86	1,036,488.83	350,732.00
Pure Oil	588,903.00	835,607.00	20,404.00	828,567.00	.....
Southern P. L.	85,211.04	.....	53,281.46	20,404.20	30,219.12
Bradford Tran.	252,656.27	494,495.39	.....	521,921.61	.....
N. Y. Transit	117,982.95	37,755.36	212,579.00	221,562.28	.....
Northern P. L.	181,526.47	.....	451,673.20	81,275.48	374,703.27
Tide Water Pipe	739,444.16	23,078.70	323,817.99	442,472.19	.....
Tuscarora Dev.	4,847.35	.....	.....	230,356.82	.....
Valvoline P. L.	103,141.71	73,345.74	.....	54,927.66	13,848.71
Other companies	155,536.46	324,238.28	532.60	235,546.49	.....
Total March	6,885,907.30	2,733,093.01	6,708,470.30	6,504,512.24	3,100,352.54
Total February	6,851,898.84	2,500,811.91	6,115,510.80	5,969,633.19	2,738,283.19
Difference	+34,008.46	+232,281.10	+592,959.50	+534,879.05	+362,069.35

Unusual Difficulties in Laying Pipe Lines

(Continued from Page 17)

city of Galveston and the various industries on the island. About a year ago, the company accomplished a rather unusual and interesting undertaking in raising and replacing approximately 350 feet of

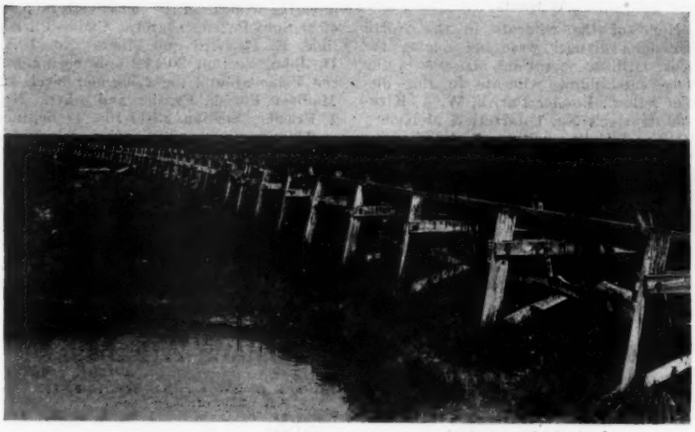
This stretch, located at El Vista, in Jefferson County, south of Beaumont, Texas Gulf Coast, is recognized everywhere as being the worst pipeline spot in the country. This is on the right-of-way of the Gulf Pipe Line Co. Not only is the laying of a line through such a marsh difficult but the soil on this stretch is highly corrosive

the pipe in the middle of the bay and without any part of the work being done on the shore.

The job ordinarily would have been hazardous in view of possible breakage of joints due to the swiftness of the tides and the rise and fall of the barge with the waves and tide but by means of a specially devised frame and cradle on the rear of the barge the danger was eliminated. The cradle which supported the raised portion of the pipe was mounted on rollers and could be rolled forward and backward as desired, moving with the rise and fall of the barge. The new pipe to replace the old was carried on the barge and as the line was lowered back into the water by moving the barge forward successive joints of new pipe were put in place until the entire replacement job was completed.

Pure Oil Co. has an under-water pipe line job at Sweet Lake in Cameron Parish, Louisiana. The company's Sweet Lake Field is in the middle of Sweet Lake, an inland body of water in the tidal marsh district along the coast. The field is about a half mile off the shore of the lake proper but the lake is about 2½ miles through the marshes from the company's base of operations. A 4-inch line laid on the bed of the lake from the field to the shore of the lake and then along the bank of the canal which connects the lake with the base, carried the production of the field to the company's treating plant and storage located at the base. From this point a 6-inch line carried the oil back along the bank of the canal, across the lake and across a stretch of marsh to a barge loading dock on the Intercoastal Canal. A gas line also laid under water from the field supplies gas to the base.

Across the bay to Harbor Island off the lower Texas Coast, both Atlantic Pipe Line Co. and Humble Pipe Line Co. have placed their lines on trestles part of the way. These trestles parallel the causeway, the Atlantic being on one side of the causeway and Humble on the other. The former company's crossing is on its Refugio-Harbor Island system, while Humble's crossing is on the company's Ingleside-Harbor Island line. Both companies have loading terminals on Harbor Island. Across channels where boats move the lines had to be placed on bottom.



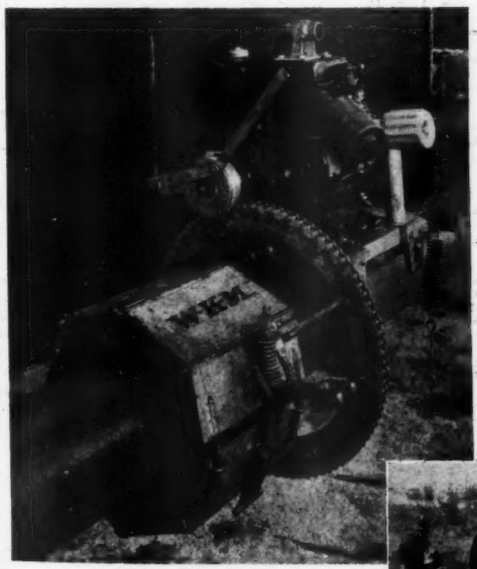
The trestle carrying this gas line extends for miles across a tidal marsh along the Gulf of Mexico. The marsh which is under water during high tides will not permit the ditching of pipe

Ship Channel Problems

Crossing of deep water, navigable streams, such as the Houston Ship Channel involves special consideration. Lines across the Houston Channel are required by the War Department, which controls the channel, to be at least 15 feet below the bottom, or more than 45 feet below mean low tide. Requirements call for a clear channel 45 feet deep and 350 feet across. Lines laid on the bottom, as in ordinary river crossings, would interfere with dredging operations which must be carried on to keep the channel clear for navigation, and at the same time the lines themselves would be exposed to the hazard of being broken by dragging anchors.

The procedure of laying lines across the Houston Ship Channel sometimes is tedious. The bottom for the most part consists of shifting quick sand which tends to fill up trenches sometimes almost as rapidly as they are dredged, and before the lines can be laid in them. Only a limited number of hours are allowed a company to lay the crossing. A permit first must be obtained and the hours for the work prearranged, and during this time all boat traffic is stopped.

To avoid this procedure, which must be repeated every time a line must be reconditioned or replaced, Sinclair Prairie Pipe Line Co. excavated a tunnel under the channel for its lines and in which space is leased to other companies. The top of the tunnel, which is 8 feet in diameter, is 24 feet below the present bottom of the channel at its deepest point, is 600 feet long connecting the bottoms of the vertical shafts at either side of the channel, and has 12-inch concrete walls. It was completed early in 1932.



A NEW W-K-M

PIPE-CLEANING MACHINE

(MODEL "C" PATENTED)

for short reconditioning jobs on pipe ranging in size from 2″ to 24″ inclusive

The new W-K-M Model "C" Travelling Type Pipe Cleaning Machine is a small, power driven unit designed for jobs too small to justify the use of the large W-K-M Model "B" Pipe Cleaning Machine. The Model "C" machine is flexible, and well adapted to cleaning pipe in and around all obstructions, such as valves, patches and clamps. It is ideal for reconditioning those hot spots. Can be equipped with knives for removing old coatings; cutters for cleaning dirt and rust; or a brush head for thorough brushing. It is light in construction, and two men can apply or remove it in less than five minutes. Speed of travel depends on condition of pipe, and varies from 2 to 50 feet per minute. Full details will be supplied on request.

● *(Above):* New W-K-M Model "C" Pipe Cleaning Machine on 8-inch pipe.

● *(Right):* New W-K-M Model "C" Pipe Cleaning Machine cleaning pipe in the ditch.

CRUTCHER-ROLFS-CUMMINGS-INC.

Specializing in

PIPE LINE EQUIPMENT AND MATERIALS

HOUSTON, TEXAS U.S.A.

North Louisiana Has Best Completion Report That District Has Had in Several Months

By J. R. CRUMPTON
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Apr. 22.—From a standpoint of completions, the North Louisiana district had its best week in several months, reporting four good gas wells, five oil wells with only three dry holes out of 12 completed holes. The gas wells led in interest, three being extensions of proven fields in two separate parishes. None of the wildcats showed anything of interest and the three dry holes were of minor importance.

NORTH LOUISIANA

In the Sligo area of Bossier Parish, Arkansas-Louisiana Gas Co.'s No. 2 R. O. Roy, Section 18-17-11, gauged 31,700,000 feet of gas from a total depth of 2,755 feet. The rock pressure registered 1,200 pounds. The well extends production in this particular horizon about one-half mile east, and definitely proves another producing sand in a very prolific field which already produces from the Nacatoch around the 900-foot level through several sands to the Oolitic lime in the upper Trinity around 4,300 feet.

The same company's No. 2 Rodessa Oil & Development Co., Section 23-23-16, in the Rodessa area in the northwestern part of Caddo Parish, was completed from the upper Trinity horizon, gauging 56,500,000 feet of highly saturated gas from 5,869 feet. The well had a rock pressure of 2,270 pounds and extended gas production to the northeast one-half of a mile. An extension of one-half mile to the northwest was United Gas Public Service Co.'s No. 1 Fosque Unit in Section 28-23-16. This well was the best of the week, gauging 71,700,000 feet of gas with 2,270 pounds pressure from a total depth of 5,950 feet. The Rodessa Field produces a highly saturated gas from the Oolitic lime in the upper Trinity around the 5,600-foot level and also from several sand strata below that depth. The fourth gasser was reported from the Union Parish area of the old Monroe Field, Southern Carbon Co.'s No. 66 fee, Section 5-20-4e, gauged 14,500,000 feet of dry gas from 2,215 feet with 865 pounds rock pressure.

Oil Producers

Four of the five oil producers were in an area extended during the past year in the old Caddo Field. Press & Lambert's No. 1 Hughes, Section 15-20-15, is pumping 80 bbls. daily from 2,201 feet. C. A. Tooke's No. 1 fee, Section 16-20-15, is a 45-bbl. pumper, and in the same section, Tooke & Reynolds' No. 3 Levy is pumping 90 bbls. from 2,182 feet. The other producer in this area was V. & F. Oil Co.'s No. 3 Etchison, Section 16-20-15, is another fair pumper of 35 bbls. daily from 2,200 feet. Operators in the North Louisiana district are drilling the old fields, and getting fair production on extensions discovered during the past year. In the Converse area of Sabine Parish, Hill Meyers and others' No. 1 Henderson, Section 29-9-13, was a disappointment making only 12 bbls. of oil and 300 bbls. of salt water from the chalk at 1,956 feet.

On the western flank of the Homer Field in Claiborne Parish, J. C. King's No. 1 Odis Webb, Section 21-21-8, was abandoned as dry at 1,899 feet. The test was started in an effort to pick up another high of the Nacatoch, but topped this formation at 1,871 feet, whereas it is contacted and produces from the 1,100-foot level in the field proper about 2 miles to the east. In semiproven territory in the Caddo area, Simplex Oil Co.'s No. 2 R. T. Glassell, Section 23-20-15, was abandoned as dry at 2,275 feet, and the limits of the Blanchard shallow gas field were defined to the southwest with the abandonment of the Texas Trading Co.'s No. 1 J. B. Waskon, Section 29-19-16, at 928 feet.

Wildcats

None of the wildcats in the North Louisiana district were hot during the week. Drilling operations on some of the more outstanding wildcats in this district follow: Bossier Parish, W. A. Kirkland, trustee's No. 1 Jarrett & McKeller, Section 3-21-13, drilling at 1,575 feet; Plain Dealing Syndicate's No. 1-A Bollinger, Section 31-23-12, set 10-inch surface casing at 48 feet and drilling at 1,850 feet; Rich Plain Oil Co.'s No. 1-A S. H. Bollinger, Section 22-22-13, has spudded in and set 10-inch at 40 feet, about 2 miles south of the town of Plain Dealing in an area where a well was brought in a number of years ago, but sanded up after flowing for several days.

In the northwestern part of Caddo Parish, near the town of Vivian, W. T. Bell and others' No. 1 Bostick, Section 12-22-16, tested salt water and is shut down waiting orders at 2,785 feet. An interesting wildcat in the northwestern part of DeSoto Parish, near the Caddo Parish lime, E. B. Nird and others' No. 1 A. D. John, Section 20-14-16, is coring for the Tokio around the 2,500-foot level. In Madison Parish, Frazier and others' No. 1 Frazier, Section 23-17-10e, is drilling at 2,900 feet. One rig is active in Rapides Parish, Williams, Carroll & Day's No. 1 Armstrong and Murphy, Section 24-5n-1w, drilling shale at 2,220 feet. In Red River Parish, Sterling Oil & Refining Co.'s No. 1 Long Bell Lumber Co., Section 19-13-9, is drilling at 2,926 feet, and J. S. Tuffree's No. 1 T. A. Wilkinson, Section 11-12-11, has resumed operations after being shut down for a period and is drilling at 1,395 feet. A wildcat of more than passing importance is Virgil Likens' No. 1 E. L. Stewart in Section 23-18-10, in the eastern part of Webster Parish, about midway between the Bellevue shallow field in Bossier Parish and the Bisteneau Lake gas area. The test topped the Arkadelphia at 1,376 feet, the Nacatoch at 1,472 feet and is drilling ahead at 1,725 feet.

ARKANSAS

The Arkansas district experienced an unusually dull week both from the standpoint of completions and active operations. Three completions were reported, all dry. In the old Bradley Field, Lafayette County, W. H. Harvey's No. 2 Allen, Section 18-19-24, encountered salt water and was abandoned at 2,787 feet. A wildcat in Section 35-15-24, Riggs Brothers' No. 1 J. W. Dubose, Lafayette County, was abandoned because of litigation at 2,000 feet. An edge well in the Miller County area, Lee Timberlake's No. 1 Frost estate, Section 27-15-26, cored salt water sand and was abandoned at 2,993 feet.

A wildcat in Ashley County, Glenn E. McFaddin's No. 1 Bovine Farms, Section 1-18-8, has drill stem stuck at 2,800 feet, and a Columbia County test, near the northern Louisiana lime, Southern States' No. 1 Piney Woods Lumber Co., Section 10-20-22, is drilling at 823 feet. After being practically condemned as an oil field, the recently hot spot west of Camden in Ouachita County will get another test. Charles Steele and others' No. 1 H. W. Myar estate, Section 16-13-18, has spudded in and is arranging to set surface casing at 50 feet. The two deep tests in Union County, both in old proven areas, continue to hold the center of attention in that district.

In the Smackover Field, Gulf Refining Co.'s No. 49 Louis Werner, Section 5-16-16, is drilling in hard sand and red beds at 4,840 feet. H. L. Hunt, Inc.'s No. 15 E. F. Gregory, Section 10-17-14, in the Rainbow Field, northeast of El Dorado, tested salt water at 6,545 feet and is drilling ahead in broken lime at 6,552 feet. This test is scheduled to go to 7,000 feet and will core carefully until the hole is finished. Several good shows of both oil and gas have been encountered since leaving the base of the red beds at 5,937 feet.

Estimated Production

Estimated daily gross production all companies week ending April 19:

NORTH LOUISIANA

	Bbls.
Bellevue	710
Caddo, light	4,940
Caddo, heavy	2,160
Converse	1,030
Cotton Valley	460
DeSoto and Red River	1,425
Elm Grove	390
Haynesville	3,555
Holly	135
Homer	2,640
Pleasant Hill	190
Sarepta-Carterville	530
Urania	3,075
Zwolle	1,705
Total	22,935

SOUTH ARKANSAS

Champagnolle	2,275
El Dorado	2,185
Lisbon	250
Miller County	1,500
Nevada	880
Smackover, light	2,200
Smackover, heavy	18,060
Stephens	555
Urbana	2,000
Total	30,205

Wildcat Operations in Louisiana-Arkansas

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

AVOYELLES PARISH

Bell Oil Co.'s No. 2 Thompson-Kolts, 450 ft. S, 350 ft. E, NW cor. Sec. 11-2n-5e. Drlg. 3,756 ft.

Southern Star Pet. Co.'s No. 1 O. G. Boyette, Sec. 26-3-5e. S.D. for high wtr. 3,875 ft.

BIENVILLE PARISH

Saline Drlg. Co.'s No. 1 Pardee, Sec. 27-14-4. S.D. 3,865 ft.

BOSSIER PARISH

Ark.-La. Gas Co.'s No. 2 R. O. Roy, 667 ft. S, 678 ft. E, NW cor. Sec. 18-17-11. Comp. 32,000,000 ft. gas 2,748 ft.

W. A. Kirkland's No. 1 Jarrett & McKeller, 330 ft. N and W, S cor. NW NW Sec. 3-21-13. Drlg. 1,575 ft.

Leonard Co.'s No. 1 Pearson, 350 ft. S and E, of C Sec. 22-21-14. D.S. stuck 2,495 ft.

Plain Dealing Synd.'s No. 1-A Bollinger, Sec. 31-23-12, 330 ft. N and E SW cor. SE NW. Set. 10-in. 48 ft.; drlg. 1,850 ft.

Richplane Oil Co.'s No. 1-A S. H. Bolinger, Sec. 22-22-13. Set. 10-in. 40 ft.

Scott & Howard's No. 1 Sherrill, Sec. 13-19-12. Partly rigged up and S.D.

R. L. Skidmore et al's No. 1 Davis, Sec 12-18-13. S.D. 1,180 ft.

Triangle Drlg. Co.'s No. 1-A State of La., Sec. 23-17-12, 1,090 ft. E, 2,640 ft. S, NW cor. Rigging up.

United Gas Pub. Serv. Co.'s No. 1-A R. V. Kerr Unit, NE cor. Sec. 24-17-12. Drlg. 106 ft.

CADDO PARISH

Alaska Oil Corp.'s No. 1 Dickerson, 150 ft. N and E, SW cor. NW NW. S.D. 1,500 ft.

Ark.-La. Gas Co.'s No. 2 Rodessa O & Devel Co., Sec. 23-23-16. Testing 5,869 ft.

Nick Babare's No. 1 Gibbs, Sec. 16-20-15. Rigging up.

J. Ed Bailey, tr.'s No. 1 Hartzo, NW cor. NE NW Sec. 28-23-16. S.D. 1,236 ft.

Barnsdale Oil Corp.'s No. 1 School fee, NE cor. NW SE Sec. 16-20-15. Drlg. 150 ft.

W. T. Bell et al's No. 1 Bostick, 1,820 ft. E, 460 ft. N, SW cor. Sec. 12-22-16. Bailing 2,785 ft.

Cal.-La. Devel. Co.'s No. 1 Glassell, NW NE Sec. 11-19-15. Set 10-in. 40 ft.

Gulf Ref. Co.'s No. 4 Caddo Levee Board, 775 ft. S, 200 ft. E, C Sec. 10-20-16. Set 10-in. 98 ft.; drlg. 1,595 ft.

Hillman et al's No. 1 J. S. Noel Est., NE NE Sec. 13-20-16. Set 10-in. 31 ft.

A. D. King, tr.'s No. 1 Roach, 641 ft. E. 375 ft. N, SW cor. SE Sec. 4-14-16. S.D. 2,128 ft.

Murray Oil Co.'s No. 1 J. S. Noel, 398 ft. S, 200 ft. E, NW cor. SW Sec. 15-20-15. S.D. 500 ft.

Press & Lambert's No. 1 Hughes, Sec. 15-20-15. Comp., pumping 80 bbls. 2,201 ft.

Press & Lamberts' No. 1 Robertson, 300 ft. N and E, SW cor. SE Sec. 15-20-15. W.O.S.R. 2,202 ft.

Recovery Oil Co.'s No. 1 W. L. Sibley, Sec. 16-19-14. Coring 2,431 ft.

A. C. Scott et al's No. 1 Noel Est., 330 ft. S and E, NW cor. Sec. 23-20-15. S.D.; W.O. 2,250 ft.

Shreveport Oil Corp.'s No. 5-B Muslow, 150 ft. S, 1,320 ft. E, NW cor. Sec. 9-20-1a. Reaming to bottom 2,100 ft.

G. R. Stevens' No. 2 Hart, Sec. 33-21-16. S.W. and abd. 1,023 ft.

Texas Co.'s No. 3 School fee, Sec. 16-20-15. W.O.S.R. 2,230 ft.

Texas Co.'s No. 4 School fee, Sec. 16-20-15. Set 6-in. 2,159 ft.

Texas Co.'s No. 2 Thigpen, 300 ft. S and E, C Sec. 15-20-1a. Set 6-in. 2,182 ft.

C. A. Tooke's No. 1 fee, 104 ft. S and W, NE cor. SE Sec. 16-20-15. Comp. pumping 45 bbls. 2,206 ft.

Tooke & Reynolds' No. 3 Levy, 300 ft. S and E, NW cor. SE NE Sec. 16-20-15. Comp. pumping 90 bbls. 2,182 ft.

CLAIBORNE PARISH

J. C. King's No. 1 Odes Webb, 330 ft. S and E, NW cor. NW NE Sec. 21-21-8. Dry and abnd. 1,899 ft.

E. T. Oakes' No. 1 H. W. Patton Est., 660 ft. S and W, NE cor. Sec. 1-20-5w. Partly rigged up and S.D.

DESOTO PARISH

E. B. Bird et al's No. 1 A. D. Johns, 330 ft. N and W, center Sec. 20-14-6. Drlg. 2,440 ft.

G. O. Collins' No. 1 J. H. Riggs, 450 ft. S and W, NE cor. SW Sec. 31-14-13. Set 10-in. 40 ft.

DeSoto Pet. Co.'s No. 1 R. Y. Wemple, C S½ SE NE SW Sec. 14-12-11. Arranging to set csg. 2,590 ft.

D. J. Flesh et al's No. 1 Farmer, 660 ft. S, 610 ft. E, NW cor. SE NE Sec. 14-12-13. Set. 10-in. 152 ft.

E. L. Foster's No. 1 Youngblood, Sec. 9-11-14. S.D. 2,691 ft.

P. G. Fraley et al's No. 1 G. R. Stell, 330 ft. S and W, NE cor. Sec. 5-13-16. Rigging up.

Leslie Prod. Co.'s No. 1 Ramsey, 150 ft. N and W of C Sec. 36-11-11. Set 10-in. 45 ft.

National Oils, Inc.'s No. 1 B. Y. Wemple, NW SW Sec. 14-12-11. S.D. 120 ft.

EAST CARROLL PARISH

Century Oil & Drlg. Co.'s No. 1 Olive Dell, 660 ft. S, 300 ft. W, NE cor. Sec. 56-21-21e. Drlg. 225 ft.

GRANT PARISH

C. & S. Oil Corp.'s No. 1 Swope, Sec. 17-19-1e. Drlg. 1,450 ft.

MADISON PARISH

Frazier et al's No. 1 Frazier, 330 ft. S and E, NW cor. SE SE Sec. 23-17-10e. Drlg. 2,900 ft.

OUACHITA PARISH

J. E. Farrell's No. 3 State of La., Sec. 21-20-4e. Set 12¼-in. 140 ft.; drlg. 2,085 ft.

NATCHITOCHES PARISH

Clyde Crichton's No. 1 Friedman Est., 400 ft. N, 423 ft. E, SW cor. Sec. 52-7-6. S.D. 2,934 ft.

Missouri Drlg. Co.'s No. 1 Brown Lbr. Co., 400 ft. N, 330 ft. W, SE cor. Sec. 5-10-10. S.D. 1,033 ft.

(Continued on Page 121)

New Southwest Extension of West Tuleta Field Holds Attention in Southwest Texas Area

SAN ANTONIO, Tex., Apr. 22.—Attention in the Southwest Texas district the past week was again centered on the West Tuleta Field, Bee County, where another important southwestern extension was marked up by the completion of Dirks Brothers' No. 1 Ray, approximately 2,000 feet south and slightly west of production in the Blanchard Survey. The test cored saturated Pettus sand from 3,929-34 feet, total depth, and when the plug was drilled late in the week, it flowed 114 bbls. in 14 hours through a five-thirty-seconds inch choke, with tubing pressure 200 pounds and casing pressure 400 pounds.

This is the second major southwest extension in the field within three weeks, the last previous extension being made by Byron and Jamieson's No. 1 Campbell, completed in the Pettus sand from 3,956-60 feet for an initial production of 200 bbls. daily through a three-sixteenths inch choke, with 580 pounds on the casing and 500 pounds working pressure on the tubing. Magnolia Petroleum Co. has made location for No. 1 Ray, west offset to the Dirks producer, and Leslie McKay is ready to spud No. 1 Campbell, which offsets the Campbell test.

The second producer in the new Dirks Pool, northwest of the West Tuleta Field, looms at Mills Bennett Production Co.'s No. 1 Bassinger, reported to have cored 4 feet of good saturated sand and the operators were preparing to make a drill stem test. Elevation of the Bassinger test is 345 feet and it is reported about 24 feet higher than Dirks Brothers' No. 1 Roth, which topped the Pettus sand at 3,880 feet.

Hidalgo County

Another Hidalgo County wildcat, in the western part of the county, is preparing to make a drill stem test in saturated sand, reported cored from 4,102-10 feet, total depth. It is Downey and Morton's No. 1 Osca Daskam in the southeast corner of the east half of Block 34, Porcion 45, Ancient Jurisdication of Reynosa, about 4 miles northeast of the Sam Fordyce Field. While attempting to make a drill stem test, the operators were unable to get the testing tool to the bottom due to cavings, and the hole is being reamed preparatory to another test. An upper gas sand was reported cored from 4,090-4,100 feet.

The potentialities of the deep test, Union Sulphur Co.'s No. 3 American Rio Grande Land & Irrigation Co., in the eastern part of the county, will probably be known by the middle of the week. The operators pulled the tubing and have reset new screen, which collapsed last week due to high gas pressures that registered 2,500 pounds on the casing and 2,250 pounds on the tubing. The test is bottomed in 16 feet of Frio sand at 7,493 feet and is waiting for cement to set after recementing the casing at 7,477 feet. While being tested last week, the well was cleaning itself and making about 400 bbls. of fluid per day, 7 per cent 48½ gravity oil and the rest wash water, when the screen collapsed, causing the well to quit flowing. This is the deepest test in the Southwest Texas district to have shown possibilities of production.

Sam Fordyce

An important extension to the Sam Fordyce Field was made by Harrison and others' No. 1 Lula George, 1,000 feet east of the production in Tract 13, Porcion 41, completed for an estimated 5 bbls. of oil per hour through a one-quarter inch choke, with tubing pressure 240 pounds and closed in casing pressure 325 pounds. Production is coming from sand cored from 2,753-56 feet, total depth.

San Patricio County

Plymouth Oil Co.'s No. 1-C Welder, a possible pool opener 10 miles east and slightly north of the town of Sinton, San Patricio County, was being tested over the week end. Production was indicated when on a drill stem test made from 5,490-5,504 feet, total depth, it recovered 400 feet of 42 gravity oil in 11 minutes, with the pressure building up to 25 pounds. Sand showing oil was cored from 5,501-03 feet and from 5,506-08 feet. Seven and five-eighths inch casing was cemented at 5,490 feet. Humble Oil & Refining Co. has leased approximately 2,200 acres, about 5 miles southeast, paying $5 to $7 per acre. Southwest of Sinton, interest is being shown in the wildcat, Masterson's No. 1 Wurzbach, coring in shale below 5,371 feet and is due to reach the sand in a few days. It is reported running somewhat higher than the discovery well of the Angelita Field, northwest.

Duval County

Two miles north of the Loma Novia Field, Duval County, 3 locations have been announced around Al Buchanan's No. 1 Ruiz, completed last week at 2,716 feet for an initial production of 16 bbls. per hour flowing by gas lift through a three-quarters inch choke. The same operator has made two locations. No. 2 Ruiz is a west offset to No. 1 and No. 3 offsets the test on the north. Humble Oil & Refining Co. is moving in a rig for No. 1 Wood and Welder, an east offset to Buchanan's No. 1 Ruiz. Since the abandonment of Claud Hamill's No. 1 Ruiz, 1 mile south at a total depth of 2,905 feet, completion of Buchanan's No. 1 Ruiz is being looked upon as a new field rather than an extension to Loma Novia Field, first indicated, due to the showing of the Hamil test which encountered sand showing oil and gas from 2,633-47 feet.

Henderson and Harvey's No. 1 Chernoskey, an interesting wildcat in the northern part of the county, encountered sand showing a little oil and lots of water at 2,541 feet, and is drilling to contract depth of 2,650 feet. If no more sands are encountered it will be plugged back to the sand encountered from 2,212-24 feet, which showed possibilities when tested two weeks ago. It is 5 miles east of the Eagle Hill Field in Survey No. 226. A mile south, Santa Clara Oil Co. is rigging up No. 1 Wood-Welder.

Although no definite gauges have been reported, Amerada Petroleum Corp.'s No. 1 Davies in the Pearsall area, Frio County is reported to have been completed, and is estimated the well is as good as the company's No. 3 Halff and Oppenheimer, completed for about 200 bbls. per day several weeks ago. The Davies test is approximately 3,000 feet southwest of No. 3 and is producing from sand bottomed at 3,921 feet. Four and a half miles southwest of No. 3 Halff and Oppenheimer, location has been made by the company for No. 1 Smith, in the B. J. Mason Survey.

Guadalupe County

In Guadalupe County, Bob Gode and others have made a wildcat location in the northwestern part of Guadalupe County, southwest of the Guadalupe River, 1,320 feet from the east line, and 150 feet from the south line of the Hicks 189-acre tract, in the E. Dos Los Santo Y Couy Survey on a 5,500-acre block, about 4 miles south of the Main Balcones Fault. It will be carried to the Glenrose and Trinity formation. Five miles southwest of Sequin, on a 2,500-acre block, Port Isable Oil & Gas Co. is preparing to start No. 1 Lessner, 600 feet from the north line and 150 feet from the west line of the lease in the Davis Survey.

Bee County

Three-quarters of a mile north of the Old Pettus Field, Bee County, Hartzendorf and others were drilling plug on No. 1 fee, which tested oil last week on a drill stem test from 3,633-48 feet, total depth. Elevation is 366 feet, and it topped the Pettus sand at 3,633-48 feet. It is in the George A. Kerr Survey. Southwest of the Caesar Field, Bee County, Paul Meaders' No. 1 Keller, in the M. Alcorte Survey, made a drill stem test in sand from 1,653-77 feet and is drilling, after the test showed some gas and water. Worth Oil Co.'s No. 1-A Rutledge, a mile and one-half north of the old Grayburg area, north of Mineral in the Hadley Survey, is preparing to test after it cored sand showing oil from 3,389-94 feet. Casing was cemented at 3,394 feet and the hole is bottomed in the Pettus sand at 3,398 feet.

In the south extension area of the Caesar Field, Bee County, Tother Oil Co.'s No. 1 Hudman tested sand from 3,112-17 feet, which showed gas and salt water and is preparing to perforate casing from 3,075-90 feet. Six miles southwest of the Caesar Field, Guy Fisher and others have made location for No. 1 Plummer, in the F. J. Chesman Survey.

Live Oak County

Southwest of the discovery well in the McNeil Field, Live Oak County, Lion Oil & Refining Co. has made a location for No. 5 P. E. McNeil, 1,320 feet from the west line and 1,320 feet from the south line of a 160-acre tract in the Jane Curry Survey, Block 9. It is reported Houston Oil Co. paid $150 in cash and contracted to drill a test on a 113-acre lease taken from Bruce McNeil, north of production, in the Jane Curry Survey. Approximately 4 miles northeast in the Dineró Field, Smith-Story and Houston Oil Co. completed No. 1 Frederick for a 300-bbl. well. Smith and Story are moving in for No. 1 Dinero Townsite, 660 feet north of No. 1 Frederick. Considerable trading is reported to have taken place in the area and several locations are expected.

One mile north of the McNeil Field, J. O. Whittington is preparing to perforate the casing in the Hockley Zone from 4,380-93 feet at his No. 1 Little located in the M. M. Shipp Survey. It was originally drilled to a total depth of 5,766 feet and the casing was perforated in the Pettus sand from 4,985-5,033 feet and 5,005-15 feet, but tested dry.

Wildcat Operations in Southwest Texas

Week Ending April 20

ATASCOSA COUNTY

Southwestern Dev. Synd., Ltd.'s No. 1 Tom. 935 ft. from N line, 427 ft. from E line of fence on R.R. right of way, Edward O'Boyle Sur.
Plugged and abnd. 1,385 ft.

BANDERA COUNTY

W. B. Kyle et al's No. 1 Duke, 200 ft. NW line, 150 ft. SW line of J. A. Bennett Sur. No. 7.
Waiting on rig; drlg. wtr. well.

Plateau Oil Co.'s No. 1 Garrison, G.C.&S.F. Sur. No. 506, 1,500 ft. from W and 2,970 ft. from N lines of survey.
S.D. 3,000 ft.

BASTROP COUNTY

Hiram Edwards' No. 1 Murchison, 11,200 ft. from NW line, 4,200 ft. from SE line, Addison Litton Sur.
Drlg. 2,715 ft.

Malone & Owens' No. 1 Spooner, 500 ft. from N line, 3,550 ft. from SW line of Leverenz Sur.
605 ft.; no report.

Marts & Beavens' No. 1 Miller, 335 ft. from NE line, 414 ft. from SE line of Blk. 33, Dykes Sur.
2,798 ft.; no report.

BEE COUNTY

Dirks Bros.' No. 1 Goree, 330 ft. from NW cor. of survey.
Spudded and set surf. csg.

Dirks Bros.' No. 1 Geo. Ray, 2,000 ft. S of Jamison's No. 1 Campbell, 990 ft. from N line, 150 ft. from W line of 80-ac. tract, Blanchard Sur. 133.
Drilled plugs and washing at 3,934 ft.

Firm Oil Co.'s No. 1 Copeland, 1,650 ft. from N line, 330 ft. from E line of lease, B. O. Hadley Sur.
Rigging up.

Haines-McMillan Oil Corp.'s No. 1 Stoltzfus, 150 ft. from N and E lines of NE¼ NE¼ NW¼ Sec. 14.
Spudded and S.D.

Hartzendorf's No. 1 fee, 990 ft. from N line, 4,290 ft. from W line of 200-ac. tract, George Kerr Sur.
Drlg. plugs at 3,648 ft.

Humble O. & R. Co.'s No. 2 Thompson, 466 ft. SW of SE cor. of J. C. Wood tract, 466 ft. SW on line parallel to E line, Wm. Burke Sur.
Cutting out drill pipe 5,405 ft.

Philmont Corp.'s No. 1 T. J. Ernest, 466 ft. from SE cor. of J. C. Madray 216-ac., thence 460 ft. NW along survey line, thence S of R/A 466 ft., Bee County School Sur.
Coring 4,200 ft.

Paul L. Meaders' No. 1 Emil Kellar, in NE cor. of Keller tract, 330 ft. from N line, 330 ft. from E line, Sec. 23, of the M. Alcorte Sur.
Drlg. Cole sand 1,314 ft.

Worth Oil Co.'s No. 1-A Rutledge, 100 ft. S of No. 1, B. Q. Hadley Sur.
Setting csg. 3,394 ft.

BEXAR COUNTY

N. G. Carter's No. 1 F. Bilhartz, 150 ft. from N and E lines of lease, F. Rolen Sur. No. 48.
Drlg. 755 ft.

Byron Rife's (Dorine Oil Co.) No. 1 Tudyk (315 acres), 500 ft. W, 350 ft. N of NW cor. of Sidney Heywood's 61-ac. tract, F. Cardinas Sur., Blk. 25.
Drlg. 1,709 ft.

Jones & Kieffer's No. 1 LaGrane, NW cor. of tract, 210 ft. each way, F. Rolen Sur. No. 48.
T.D. 1,010 ft.; bailed some 38.3 gravity oil; now fishing for bailer.

McPhee & Briggs' No. 1 F. Lamb, 9,200 ft. from S line, 800 ft. from W line of Sur. No. 3 (Manuel de Luna).
Drlg. sand; showing gas at 1,560 ft.

Geo. O'Neil's No. 1 Holly Crouch, NW cor. of 150-ac. tract.
Drlg. 1,395 ft.

Carroll C. Raborn's No. 1 Claude McCauley, 150 ft. from N and NW lines of tract in Sec. 52, Wm. Harrison Sur.
Stopped drlg. to shut off wtr.; no T.D. given.

C. C. Raborn's No. 1 A. B. Stephens, 1,630 ft. from N line, 1,540 ft. from W line of tract, P. B. Hayes Sur. No. 3.
Drlg. below surface csg. 20 ft.

CALDWELL COUNTY

Coffield & Lanning's No. 1 Franks, 150 ft. from N and E lines of 8¼ of 131.6 acres, Edward Brown Sur.
Coring 2,945 ft.

F. Meyers' No. 1 W. T. Mooney, 810 ft. from S line, 450 ft. from W line of 95-ac. tract, S. Seal Sur.
Standing 290 ft. (corrected depth).

Ogden & Reed Oil Co.'s No. 1 J. A. Compton, 450 ft. NE of NW line, 150 ft. SE at right angles out of NW cor. of P. Martinez Sur.
Moving in material.

DEWITT COUNTY

Stewart's No. 1 Kleberg, 680 ft. from W line and midway N and S lines of tract, Tommelson Sur.
Spudded and S.D.

Sunray Oil Co.'s (S. S. Price et al) No. 1 Bouhrig, 330 ft. from N and E lines of Sec. 7, T.&N.O. Sur.
S.D. 3,014 ft. (depth corrected).

DUVAL COUNTY

Al Buchanan and Blanco Oil Co.'s No. 1 Ruiz, 330 ft. from SE cor. of 282-ac. tract, Sur. 73.
T.D. 2,716 ft.; I.P. 400 bbls. per day; ½-in. choke.

Mills Bennett's No. 1-A D.C.R.C., 330 ft. from S and E lines, Blk. 17, Sur. 100.
Drlg. 1,600 ft.

Buffalo-Texas Syndicate's No. 1 Escobas, 2,777 ft. from N line, 1,944 ft. from W line of 930-ac. tract in San Francisco grant.
S.D. 4,010 ft.

Intrepid Oil Co.'s No. 2 Parr, 330 ft. from N and W lines of 80-ac. tract, Sur. 115.
S.D. to drill wtr. well.

(Continued on Page 95)

Twenty-One Locations Staked in West Texas; Continued Activity in North Texas District

By L. E. BREDBERG
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Apr. 22.—There were 21 locations staked in the West Texas District this week and 23 tests completed, several wildcats proving dry. An outpost in Crane County came through as a small producer, a semi-wildcat in Winkler County made a producer, and a deep test in Terrell County was temporarily abandoned. A second producer was proven in an area in Ector County above 5 miles west of the Addis Pool.

Republic Production Co. made a location in Andrews County for No. 1 Boner-State; in Section 25, Block 43-A, the same section as the best well completed in the Ford or Boner Pool in the southern part of the county. Lou Stogner and others abandoned No. 1 Richardson-McWhorter in Section 4, Block A-37, P. S. L. Survey, in the northern part of the county this week; total depth is 4,801 feet; elevation 3,350 feet. It is 3¼ miles northwest of another dry hole. The Means area, in the northeastern part of the county, got another producer when Humble Oil & Refining Co. completed No. 3 Means, in Section 9, Block 35-A, flowing 51 bbls. per hour after acidizing, total depth is 4,525 feet.

Crane County

Wahlenmaier Petroleum Corp. completed No. 1 Kloh, outpost test in northern Crane County, north of the Waddell Pool, for only a small well. It is in Section 33, Block 44, Township 3s, T.&P. Survey, about 1¼ miles north of an extension producer completed last week by Gulf Production Co. No. 1 Kloh made only 15 bbls. per day after plugging back from total depth of 3,695 feet and shooting with 480 quarts. Pay was topped at 3,315 feet. Regardless of the well being a small one it extends the Waddell Pool farther northeast, which adds to its importance.

Winkler Wildcat

Sid Richardson's No. 1 Walton, in Section 1, Block 3-B, P.S.L. Survey, eastern Winkler County wildcat which created considerable interest last week when it encountered sufficient gas to cause the owner to load the hole before deepening, encountered more gas this week at 2,638 feet and is now shut down to kill the gas before drilling deeper. The gas was estimated between 1,500,000 and 3,000,000 feet per day. It is 5 miles northeast of Kermit and one of the most interesting in the Permian Basin because of its "running high" and encountering gas.

Another well on the trend between the Howe and Halley Pools east of the Hendricks Field, Winkler County, was completed this week. Barnsdall Oil Co. brought in No. 1-B Brown and Altman, in Section 6, Block 5, a short distance south of Kermit, for 290 bbls. per day well at total depth of 3,210 feet. Pay was topped at 3,103 feet. Two other tests are drilling or preparing to drill in this section. Both the Howe and Halley areas, the former east of the north end of the Hendrick Field and the latter east of the south end, are exceptionally busy with wells being completed, promising production nearly each week. The question is still dominant as to whether the two widely separated areas will be connected by production. The two producers just south of Kermit, and on the trend, make such a linking possible, but this will have to be proved later as more wells are drilled on intervening acreage. If the two areas are linked it will make the second major field in the county.

Ector County

The Penn Pool in Ector County was extended a half mile west this week when O'Donnell and Callahan's No. 1 Connell, in Section 1, Block B-16, topped the pay at 3,515 feet and is flowing by heads while drilling below 3,600 feet. It is north of the W. A. Black & Sons producers and west of other producers about three-quarters of a mile. This pool has had recently noted drilling activities with the area being extended slightly in other directions, but this one proving the greatest extension. One test drilled farther northwest recently proved a dry hole limiting production in that direction.

International Petroleum Corp.'s No. 1 E. F. Cowden, in Section 25, Block 44, Township 2s, T.&P. Survey, east of the Broderick and Calvert discovery in this area which is about 5 miles west of the Addis Pool, is still incomplete at 4,177 feet where it is shut down. It topped the pay at 4,147 feet and made a 95-bbl. head at 4,157 feet while trying to pull pipe. It will make the second well in this area which had been ringed by dry holes on nearly every other side. It will make over a quarter mile extension to the east.

Sutton County

Paul C. Teas shut down No. 1 C. E. Mower in Section 39, Block 5, T.W.&N.G. Survey, Sutton County, at contract depth of 4,750 feet. This test topped the Ellenberger, lower Ordovician, at 4,520 feet with an elevation of 2,291 feet. Mr. Teas has made location for another test several miles southeast on the G. S. Allison ranch, in Section 49, Block A, G.W.T.&P. Survey. Another test is proposed on the same ranch by W. M. Lyle of Houston and C. A. Happold of Dallas. The test now shut down failed to get any oil or gas showings in the deep lime section.

C. J. Davidson and others' No. 1 Bennett location, in Section 678, John H. Gibson Survey, Yoakum County, was reported this week. Cellar has been dug and material is being moved in for this wildcat test on the north end of the West Texas district. Barnsdall Oil Co.'s No. 1 S. Young is a location in Section 26, Austin and Williams Survey No. 349, in the northern tier of West Texas counties, although east of Yoakum County. This will be the second active test in this county. Merry Brothers and Perini are now drilling in Section 6, Block C, A.B.&M. Survey.

M. L. Goos and others have rigged up as a spudder to drill on the J. E. Murphy lands in Section 114, Block 97, H.&T.C. Survey, Scurry County, the second test in this county.

A. R. Eppenauer and others' No. 1 Tillar, in Section 1, C. C. Wyatt Survey, just north of Toyah in Reeves County, is shut down for orders at 4,091 feet in lime and sand 300 feet below the top of the Delaware lime. This test had a good showing of oil and considerable gas, but failed to make a producer. It may be shot. It is an extreme wildcat test on the west side of the basin.

Fondran Production Co.'s No. 1 S. R. Cox, Jr., in Section 74, Block 14, T.&P. Survey, 3 miles east of the Texas Inland-Sellers Pool, at Fort Phantom Hill, 7 miles southeast of Hawley, Jones County, was abandoned at total depth of 3,400 feet this week. Another wildcat in this area, Shappell's No. 1 Stephenson, southwest of Hawley, was also abandoned. Total depth is 2,110 feet.

The deep test of Sudderth (Sides) on the Phelps ranch, Section 5, Block 4-A, G. W. Turley Survey, Terrell County, was temporarily abandoned at a total depth of 5,600 feet. Elevation is 2,185 feet. This is an extreme wildcat.

WICHITA FALLS DISTRICT

Continental Oil Co., Skelly Oil Co. and Bridwell Oil Co. of Wichita Falls have been leasing tracts on the lime "high" north of Muenster in Cooke County. There have been some nice wells drilled in this area of late. The Bridwell company has taken three blocks in this area and one in Montague County, the latter for a 2,500-foot test.

W. F. Russell's No. 1 Piott, in the Muenster area of Cooke County, is a 40-bbl. well from the shallow sand at 707-17 feet. It is a semiwildcat about 1 mile southeast of the Fain and McGaha's producers. Merrick Oil Co. completed a shallow producer in the area this week on the Knabe farm 4 miles southeast of the Muenster Pool, and came through for 70 bbls. at total depth of 735 feet.

Production in the Wichita Falls district averaged 62,590 bbls. per day during the week.

Johnson Pool

The Johnson Pool, on the extreme west edge of Foard County, was limited to the northwest this week when Texas Co.'s No. 7 Les K. Johnson, in Section 35, Block L, S.P. Survey, but over the line in Cottle County, was abandoned at a total depth of 3,894 feet. It tested 5 bbls. of oil and 300 bbls. of salt water at 3,375-3,414 feet, but had a showing of oil below this at 3,716 feet which failed to materialize into a producer. The company has four high gravity oil producers in this pool and a casinghead gasoline plant. The wells have a pipe line outlet and gasoline from the plant is piped to a loading rack at Ford and moved out by tank car.

PANHANDLE DISTRICT

There were seven locations staked in the Panhandle district this week with 18 wells being completed, 6 being in Gray County and 8 in Wheeler County. Four were dry, two in Wheeler, one in Cottle County and one in Gray. The best well of the week was Skelly Oil Co.'s No. 1 Belew in Wheeler County, which had an initial producer of 2,074 bbls. per day with 8,500,000 feet of gas.

Production in the Panhandle district averaged 61,195 bbls. per day this week, an increase of 5,510 bbls. per day over last week.

COMPLETIONS IN WEST TEXAS

Andrews County

Stogner and others' No. 1 Richardson-McWhorter, dry and abandoned 4,801 feet, top lime 4,574 feet, elevation 3,350 feet. Humble Oil & Refining Co.'s No. 3 Means, elevation 3,165 feet, top pay 4,475 feet, total depth 4,525 feet, initial production 51 bbls. per hour.

Crane County

Wahlenmaier Petroleum Corp.'s No. 1 Kloh, top pay 3,315 feet, total depth 3,695 feet, shot 480 quarts from 3,270-3,600 feet, plugged back to 3,615 feet, elevation 2,796 feet, initial production 15 bbls. per day.

Howard County

Cranfill & Reynolds' No. 2 Abrams, total depth 2,433 feet, acidized, initial production 720 bbls. per day swabbing. Sinclair Prairie Oil Co.'s No. 15 Dodge estate, top pay 2,464 feet, total depth

(Continued on Page 93)

Wildcat Operations in West Texas

Week Ending April 21

ANDREWS COUNTY

Fuhrman Pet. Corp.'s No. 2 Ford, 440 ft. from S and 1,320 ft. from E, Sec. 16, Blk. A-43.
Rigged up rotary.

Honolulu & Llano Oil Co.'s No. 1-B Parker, 440 ft. from N and 1,650 ft. from E, Sec. 11, Blk. A-43.
Elev. 3,381 ft.; drlg. 1,330 ft.

Humble Oil & Ref. Co.'s No. 4 Means, 654 ft. from S and 1,997 ft. from W, Sec. 4, Blk C-45.
Elev. 3,185 ft.; S.D. 2,515 ft.

Republic Prod. Co.'s No. 1 Boner-State, 2,200 ft. from S and 1,320 ft. from E, Sec. 25, Blk. A-43.
Location.

J. W. Tripplehorn's No. 1 Ogden, 330 ft. from S and 2,310 ft. from W lines of Sec. 6, Blk. A-46, P.S.L. Sur.
Cellar and pits.

Wahlenmaier et al's No. 1 Odessa Ranch Co., 1,320 ft. from N and E of Sec. 10, Blk. A-32, P.S.L. Sur.
Drlg. 1,145 ft.

Wahlenmairer et al's No. 1 Cox Estate, 1,320 ft. from N and W of Sec. 8, Blk. A-33.
Location.

BREWSTER COUNTY

F. C. Dodson's No. 1 Texas American Syndicate, 660 ft. from N and E, Sec. 66, Blk. 10, G.H.&S.A. Sur.
Fishing 950 ft.

Joiner et al's No. 1 McIntyre, 353 ft. from S, 2,390 ft. from E of Sec. 21, Blk. 352, W. M. Mitchell Sur.
S.D. 2,150 ft.

King & Franklin's No. 1 Gage Est., C Sec. 138, Blk. 22, G.H.&S.A. Sur.
S.D. 800 ft.

G. H. Storey's No. 1 Wilson, 1,980 ft. from N and E lines of Sec. 3, Blk. 212, T.&St.L. Sur.
Drlg. 320 ft.

S. G. Smith's No. 1 Decie, 2,490 ft. from S and E, Sec. 7, Blk. 1.
S.D. 815 ft.

COCHRAN COUNTY

Kelsey's No. 1 Slaughter, C Labour 36, League 150, R.C.S. Lands.
Derrick.

West Texas Development Co.'s No. 1 Slaughter, near C of Labour 53, League 149, Randall Co. School Lands.
Derrick.

COKE COUNTY

Haggerty et al's No. 1 Gaston, 340 ft. from S and 654 ft. from W, Sec. 11, Jos. Young Sur. (old well deepening).
T.D. 2,830 ft.; setting csg.

CRANE COUNTY

Cranfill Bros.' No. 1 Tubbs, 330 ft. from S and W of Sec. 11, Blk. B-27, P.S.L. Sur.
Drlg. 815 ft.

Gulf Prod. Co.'s No. 1 M. B. McKnight, 660 ft. from S and W, Sec. 9, Blk. B-21.
Drlg. 700 ft.

Gulf Prod. Co.'s No. 1 Waddell, C NW NW Sec. 4, Blk. B-27, P.S.L. Sur.
Drlg. 4,570 ft.

Magnolia Pet. Co.'s No. 1 Edwards, 330 ft. from S and 990 ft. from E, Sec. 2, Blk. B-23.
Location.

CROCKETT COUNTY

Eppenauer Drlg. Co.'s No. 1-C Powell, 1,600 ft. from S and 250 ft. from E, Sec. 53, Blk. B.B.
Elev. 2,665 ft.; T.P. 2,515 ft.; T.D. 2,556 ft.; to acidize and test.

Leslie-Hiller et al's No. 1 Todd, 1,200 ft. N and 330 ft. E, Sec. 36, Blk. WX, G.C.& S.F. Sur.
S.D. 530 ft.

Humble Oil & Ref. Co.'s No. 1 Couch, C NW Sec. 3, Blk. QR, G.C.&S.F. Sur.
Temporarily abnd. 1,881 ft.; elev. 2,538 ft.

CULBERSON COUNTY

Anderson-Pritchard Oil Corp., Magnolia Pet. Co. et al's No. 1 Borders, 1,255 ft. N and 2,305 ft. from W, Sec. 34, Blk. 69, P.S.L. Sur.
Drlg. 1,125 ft. on iron.

Camp Hill Now Center of Interest in East Texas; Bottom Hole Pressure Dropping in Old Field

By L. E. BREDBERG

DALLAS, Tex., Apr. 22.—The Camp Hill Field, 7 miles southeast of Palestine in Anderson County, is the first field in the East Texas district to produce from the Sub-Clarksville formation, which is above the Woodbine sand. Practically every field in the district produces from the Woodbine. Camp Hill promises a field of minor, if not major, proportions with three wells already producing from the Sub-Clarksville and others proposed to be drilled to that formation. Only one location was reported this week, but next week's reports are expected to show several more. Three proposed shallow tests by the Gulf Production Co., on the Flint and Scott, a west offset to a deep test drilled by the company on the M. J. Ross to 5,476 feet; on the Delaney tract and on the Calloway tract, all in the Phillips Martin Survey, and to the southwest of the discovery well, were abandoned this week. No. 2 Robinson, in the P. Martin Survey, north of a shallow dry hole, is now rigging up.

The field now runs over a mile west from the discovery, and it is not known in which direction future locations are to be staked. Gulf production Co.'s No. 1 M. Maddox, in the D. Stilts Survey, farthest from the discovery, went dead April 21 after making 1,000 bbls. of oil, but again started flowing after standing "dead" two hours. The first hour it started flowing after going dead, making 26 bbls. through three-quarters inch choke on tubing. Total depth is 5,170 feet. No. 1 L. B. Ross, between the Maddox and the discovery, has been flowing around 8½ bbls. per hour through three-eighths inch choke on tubing. Closed in pressure on casing was 1,275 pounds and working pressure on tubing was 250 pounds, closed in tubing pressure registering 1,300 pounds. Gravity of the oil is 38.2 degrees. Total depth is 5,137 feet.

As this is the first field of its kind in the district no one knows what to expect as to size of wells, their longevity, whether production is to be spotted, or what kind of a field may be expected, therefore its development will be closely watched. Gulf Production Co. holds a large block around the discovery, but several independents and a couple of other companies hold some smaller tracts within the block. These inside pieces are sure to cause immediate testing, which will give more information on the possibilities of the area, which when first drilled showed only gas. The discovery well is now making around 150 bbls. oil per day.

Gulf Production Co.'s No. 1 O. G. Rogers, in the D. Parker Survey, 5 miles southwest of Elkhart, Anderson County wildcat, tested and showed 1,100 feet of salt water at 5,525 feet. It is now shut down for orders and will probably be abandoned.

Henderson County

T. L. Wynne and others' No. 1 George Forrester, in the S. Cherry Survey, south of Murchison in Henderson County, topped the Austin chalk between 3,650 and 3,670 feet, and is now drilling at 3,725 feet. This Woodbine sand wildcat is being drilled on acreage farmed out by Tide Water Oil Co. and Texas Seaboard Oil Co.

Anderson Wildcat

Hunt Production Co. and Sun Oil Co.'s wildcat test in the Slocum area, southern Anderson County, had a shallow showing of live oil from 1,145-50 feet that was not encountered in any of the other tests in this area, one of which is only 1,000 feet distant and was drilled last year. This showing of live oil is from the Carrizo sand, from which showings of oil and gas were found in the Camp Hill area to the northeast, and from which one shallow well in that area is producing gas. Oil produced in the Boone Bros. area to the south in Houston County is similar to the oil found in this Anderson County wildcat, which is on the Mary Scott farm in the Joseph Crawford Survey. Anderson County is the first county in the district to produce oil or gas from the three formations: the Carrizo sand, which is the shallow formation, the Sub-Clarkesville formation and the Woodbine sand. One test is drilling in the Cayuga area, in the northwest part of the county, for Trinity sand production. If production is found in that test. Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 21-A Wills, in the S. Edmondson Survey, it will make the fourth producing horizon in the county. That test is drilling below 7,410 feet.

Cayuga Area

Two locations have been reported in the northwest extension area of the Cayuga Field, northwest Anderson County. Clark and Cowden of Dallas are preparing to drill on the J. W. Barton farm, in the T. Bristow Survey, southeast of the Worsham's No. 1 Wathen extension producer near the Henderson County line. Edson Petroleum Co. is to drill on the C. L. Loper three acre tract in the I. Clendennen Survey which straddles the Anderson-Henderson County line. This location is east of the extension discovery, and a little north.

Nacogdoches Wildcat

A. D. Boyd has made location for a Woodbine sand test near the town of Chireno in Nacogdoches County, on the R. E. Mattauer lands in the J. A. Chireno Survey. This will make the third location in the county, with one test active. It is the only county in the district that has recently seen mining for oil, a group of miners having dug a 95-foot shaft and encountered a small amount of production near Nacogdoches. This was the first county in Texas to witness the production of oil.

Falls, Morris, Smith and Van Zandt County, each reported abandonments this week. In the former, Davidson's No. 1 Bozeman was given up as dry at 2,935 feet. Joiner Ranch Development Co. abandoned No. 1 Reese in Morris County at total depth of 3,511 feet and Doctor Garland abandoned No. 1 Bartlett, in the R. G. Stewart Survey, 1 mile southeast of Jamestown, Smith County, at 3,102 feet. A shallow test north of the Van Field, Van Zandt County, was abandoned on the Anderson farm at 1,850 feet.

A 100,000 foot gasser was completed west of the Mexia Field in Limestone County at a total depth of 2,807 feet by Crawford and others of Dallas on the Vol De Long farm. This test created interest several weeks ago when it encountered gas and a showing of oil, but it failed to be better than a small gasser.

EAST TEXAS FIELD

Whereas the number of wells completed in the East Texas Field dropped to 92 during the week, 129 new locations were staked, 21 of which were made by the Atlantic Oil Producing Co., fourth largest producer in the field, with a total of 833 wells.

New Low Bottom Hole Pressure

Out of the 92 wells completed this week six were completed as pumpers, one as a "swabber" and two flowed intermittently by heads. One test in Gregg County was junked and abandoned at 3,579 feet and another in the same county was given up at 2,675 feet. Bottom hole pressures in the field, reported by the East Texas Engineering Society, which takes monthly bottom hole gauges of over 300 key wells, showed an average of 1,217 pounds, or 3 pounds below the average weighted pressure last November. The figure is a new low and comes when overproduction has been held to what might be called a minimum. There are now 17,000 wells producing over 440,000 bbls. per day, and with around 100 new ones completed each week, next month's drop in pressures may show a greater decline. It appears as if the field had started on a gradual decline, but it will be many months before the average weighted bottom hole pressure is down to around 1,100 pounds, or what is considered the artificial lift stage.

COMPLETIONS IN EAST TEXAS DISTRICT

North Gregg County

Arkansas Fuel Oil Co.'s No. 6 Snoddy, top pay 3,558 feet, total depth 3,582 feet, initial production 25 bbls. in 15 minutes; No. 6 Stephens, top pay 3,584 feet, total depth 3,609 feet, initial production 25 bbls. in 15 minutes; Atlantic Oil Producing Co.'s No. 11 Fisher, top pay 3,453 feet, total depth 3,497 feet, initial production 90 bbls. per hour; No. 13 Harris, top pay 3,524 feet, total depth 3,560 feet, initial production 100 bbls. per hour. Barnsdall Oil Co.'s No. 14 Adams, top pay 3,584 feet, total depth 3,610 feet, initial production 42 bbls. in 30 minutes. Empire Gas & Fuel Co.'s No. 13 Bumpas, top pay 3,477 feet, total depth 3,530 feet, initial production 70 bbls. per hour. General Crude Oil Co.'s No. 3 fee, top pay 3,488 feet, total depth 3,516 feet, initial production 15 bbls. in 15 minutes.

Gilcrease Oil Co.'s No. 3-A Tooke, top pay 3,522 feet, total depth 3,554 feet, initial production 35 bbls. in 15 minutes. Cabot Carbon Co.'s No. 8 Graves, top pay 3,580 feet, total depth 3,592 feet, initial production 80 bbls. per hour. Monte Oil Co.'s No. 9-B Fenn, top pay 3,618 feet, total depth 3,650 feet, initial production 45 bbls. in 15 minutes. W. Logan, receiver's No. 4-A Harris, top pay 3,506 feet, total depth 3,541 feet, initial production 25 bbls. in 20 minutes through 1-inch choke.

Magnolia Petroleum Co.'s No. 7 Fisher, top pay 3,449 feet, total depth 3,460 feet, initial production 86 bbls. per hour; No. 8 Green, top pay 3,573 feet, total depth 3,596 feet, initial production 100 bbls. per hour; No. 7 McKinley, top pay 3,625 feet, total depth 3,667 feet, initial production 80 bbls. per hour; No. 9 Saulter, top pay 3,627 feet, total depth 3,633 feet, initial production 80 bbls. per hour; No. 20 White, top pay 3,490 feet, total depth 3,517 feet, initial production 125 bbls. per hour; Margay Oil Co.'s No. 7 Christian, top pay 3,674 feet, total depth 3,694 feet, initial production 75 bbls. per hour.

Port Boliver Oil Co.'s No. 1 Mackey, junked and abandoned 3,579 feet. Roeser & Pendleton's No. 8-B Nicholson, top pay 3,592 feet, total depth 3,610 feet, initial production 25 bbls. in 25 minutes. Sattelite Oil Co.'s No. 9 Colburn, top pay 3,536 feet, total depth 3,588 feet, initial production 125 bbls. per hour. Shell Petroleum Corp.'s No. 19 King, top pay 3,548 feet, total depth 3,616 feet, initial production 40 bbls. in 30 minutes. E. L. Smith Oil Co.'s No. 7-B Taylor, top pay 3,524 feet, total depth 3,553 feet, initial production 27 bbls. in 20 minutes through three-quarter inch choke.

Sun Oil Co.'s No. 19 Aiken, top pay 3,558 feet, total depth 3,614 feet, initial production 60 bbls. per hour. Turnbow's No. 3 Person, top pay 3,465 feet, total depth 3,533 feet, initial production 60

East Central Texas Wildcats

Week Ending April 20

ANDERSON COUNTY

Gulf Prod.'s No. 1 M. Maddox, David Stitz Sur., 330 ft. out of SE cor. of 120-ac. tract and survey.
Drlg. 5,190 ft.; base Austin 5,184 ft.

Gulf Prod. Co.'s No. 1 L. B. Ross, J. C. Rosson Sur., 330 ft. S and E of 35-ac. tract.
T.D. 5,137 ft.; est. 500 to 1,500 bbls. per day; top sand 5,131 ft.

Gulf Prod. Co.'s No. 1 O. G. Rogers, 330 ft. out of NW cor. of D. Parker Sur., 5 miles SW of Elkhart.
T.D. 5,523 ft.; T.S. 5,519 ft.; to make test.

Hunt & Son Oil Co.'s No. 1 Scott, 1,196 ft. from N and 330 ft. from W lines, Jos. Crawford Sur.
Rigged up.

J. W. Luttes' No. 1 C. McKee, 2,640 ft. from N line of lease and survey and 330 ft. from W line of McKey 800-ac. tract.
Derrick.

BOWIE COUNTY

Tex-Ark. Oil Co.'s No. 1 Hamilton Estate, 600 ft. E and 350 ft. N lines, J. Milan Sur., 4 miles S of Red River.
T.D. 250 ft.

CAYUGA AREA

Clark-Cowden's No. 1 Barton, 550 ft. N and S and 199 ft. E and W lines of 9.86-ac. lease, T. Bristow Sur.
Rig.

Roeser & Pendleton's No. 1 Wathen, 467 ft. out of SE cor. of tract and B. Towles Sur.
Drlg. 1,232 ft.

Tide Water-Seaboard's No. 1 J. Smith, John Adams Sur., 668 ft. W of E line and 467 ft. N of S line of 41-ac. tract (Long Lake area).
Drlg. 3,780 ft.

Tide Water Oil Co. et al's No. 21-A Wells, 4,079 ft. N and 2,333 ft. W of lease, S. Edmondson Sur. (Trinity test).
Drlg. 7,212 ft.

CHEROKEE COUNTY

Jacksonville O. & G. Co.'s No. 1 H. D. Henderson, 660 ft. from N and W lines of 40-ac. tract out of Tankersley 104-ac. tract, 5 miles NE of Jacksonville, J. Pineda Sur.
S.D. 693 ft.

Ponta Oil Co.'s No. 1 C. W. Darby, 1,944 ft. S and 630 ft. W of East Cyrus Parks Sur., 2¼ miles S of Summerfield.
T.D. 1,385 ft.

Wilson Stubbs Oil Co.'s No. 1 Rowborts, 450 ft. from S line, 150 ft. from W line of 100-ac. tract, 2 miles SW of Jacksonville, J. D. Wolfin Sur.
S.D. 1,552 ft.

T. J. Woods et al's No. 3 New Birmingham Dev. Co., 1,320 ft. from S and 150 ft. from E lines of 160-ac. tract, L. Jordan Sur., NE of No. 1.
Material.

ELLIS COUNTY

Murphee & Coker's No. 1 Coker, 2,900 varas along S line of grant from river and 1,700 varas N at R/A, R. De La Pena Sur.
Drlg. 1,100 ft.

FALLS COUNTY

C. P. Schuh et al's No. 1 P. St. Clair, 330 ft. from W and 280 ft. from S of 218-ac. tract, J. A. Manchaca Sur., E of Chilton.
S.D. 727 ft.

FANNIN COUNTY

Wilson, Moore & Smith's No. 1 Mrs. M. Rogers, 150 from ft. N and 900 ft. from E line of Jas. Saunders Sur., in town of Trenton.
S.D. 582 ft.

FREESTONE COUNTY

Daniel Oil & Royalty Co.'s No. 2 Ball, J. Y. Aquilera Sur., 1,320 ft. N and 1,390 ft.

(Continued on Page 95)

bbls. in 30 minutes. Whittington's No. 8 Bumpas, top pay 3,523 feet, total depth 3,563 feet, initial production 80 bbls. per hour. Yount Lee Oil Co.'s No. 9-B McKinley, top pay 3,633 feet, total depth 3,653 feet, initial production 60 bbls. per hour through eleven-sixteenths inch choke; No. 8-C McKinley, top pay 3,607 feet, total depth 3,627 feet, initial production 50 bbls. per hour, through eleven-sixteenths inch choke.

Barnsdall Oil Co.'s No. 9 Smith, top pay 3,588 feet, total depth 3,570 feet, initial production 32 bbls. in 30 minutes. Droppleman's No. 3 Martin, junked and abandoned 2,675 feet. Fair & Thompson's No. 4-A Carr, top pay 3,490 feet, total depth 3,509 feet, initial production 50 bbls. per hour. Glasscock and others' No. 3 Goforth, top pay 3,719 feet, total depth 3,722 feet, initial production 83 bbls. per hour; Gulf Production Co.'s No. 21 Cole, top pay 3,538 feet, total depth 3,553 feet, initial production 60 bbls. per hour; No. 82 Hilburn, top pay 3,635 feet, total depth 3,645 feet, initial production 67 bbls. per hour.

Invincible Oil Co.'s No. 11 Weiss, top pay 3,559 feet, total depth 3,589 feet, initial production 125 bbls. per hour; No. 16 Weiss, top pay 3,514 feet, total depth 3,530 feet, initial production 130 bbls. per hour. Iowa-Payne Oil Co.'s No. 2 Walker, top pay 3,682 feet, total depth 3,692 feet, initial production 65 bbls. per hour. Mabee's No. 22 Cole, top pay 3,546 feet, total depth 3,556 feet, initial production 50 bbls. in 30 minutes. Magnolia Petroleum Co.'s No. 11 Hughey, top pay 3,500 feet, total depth 3,522 feet, initial production 75 bbls. per hour. Producers Investment Co.'s No. 5 Rowland, top pay 3,540 feet, total depth 3,595 feet, initial production 60 bbls. in three hours by heads.

Shasta Oil Co.'s No. 4 Laird, top pay 3,521 feet, total depth 3,540 feet, initial production 75 bbls. per hour. Shell Petroleum Corp.'s No. 14-A Bivens, top pay 3,567 feet, total depth 3,609 feet, initial production 39 bbls. in 30 minutes; No. 42 Watson, top pay 3,562 feet, total depth 3,590 feet, initial production 60 bbls. per hour. Tide Water Oil Co.'s No. 13 Blackman, top pay 3,643 feet, total depth 3,648 feet, initial production 12 bbls. in 10 minutes through 1-inch choke.

Rusk County

Capital Oil, Inc.'s No. 1 Mayfield, top pay 3,610 feet, total depth 3,669 feet, initial production 400 bbls. in 24 hours, pumping. Capital and Shell Petroleum Corp.'s No. 1 Sherman, top pay 3,530 feet, total depth 3,679 feet, initial production 100 bbls. in 24 hours, pumping. Darby Petroleum Co.'s No. 13 Christian, top pay 3,679 feet, total depth 3,714 feet, initial production 33 bbls. in 15 minutes through 1-inch choke. De Armon and McMillan's No. 12 Robertson, top pay 3,616 feet, total depth 3,688 feet, initial production 15 bbls. per hour, pumping.

Devonian and others' No. 33 Motley, top pay 3,728 feet, total depth 3,730 feet, initial production 112 bbls. per hour. Harrison & Abercrombie's No. 13 Cantrell, top pay 3,684 feet, total depth 3,712 feet, initial production 100 bbls. per hour. Houston Production Co.'s No. 3 Laird, top pay 3,626 feet, total depth 3,696 feet, initial production 108 bbls. per hour. Humble Oil & Refining Co.'s No. 28-B Sexton, top pay 3,573 feet, total depth 3,677 feet, initial production 20 bbls. per hour.

Rozell Oil Co.'s No. 4-A Williams, top pay 3,590 feet, total depth 3,642 feet, initial production 30 bbls. per hour. Shell Petroleum Corp.'s No. 18 Russell, top pay 3,620 feet, total depth 3,673 feet, initial production 30 bbls. in 30 minutes. Southern Oil & Refining Co.'s No. 4 I.&G.N. R.R. Survey, top pay 3,711 feet, total depth 3,712 feet, initial production 50 bbls. in two hours.

Texas Co.'s No. 7 Chappell, top pay 3,679 feet, total depth 3,682 feet, initial production 45 bbls. per hour. Adams' No. 4 Arnold, top pay 3,565 feet, total depth 3,708 feet, initial production 50 bbls. per hour. Manahan Oil Co.'s No. 14 Neal, top pay 3,729 feet, total depth 3,735 feet, initial production 30 bbls. in 15 minutes. Despot and Adams' No. 2 Deason, top pay 3,625 feet, total depth 3,692 feet, initial production 20 bbls. per hour, pumping. Elm Oil Co.'s No. 9-B Eaton, top pay 3,724 feet, total depth 3,779 feet, initial production 75 bbls. per hour.

Humble Oil & Refining Co.'s No. 5 Lindsey, top pay 3,717 feet, total depth 3,794 feet, initial production 68 bbls. per hour; No. 8 Reed, top pay 3,579 feet, total depth 3,691 feet, initial production 19 bbls. per hour. Hunt Production Co.'s No. 5 Dickerson, top pay 3,579 feet, total depth 3,705 feet, initial production 20 bbls. per hour, pumping. Jenkins Oil Corp.'s No. 26 Jobe, top pay 3,610 feet, total depth 3,668 feet, initial production 200 bbls. in six hours, pumping. Magnolia Petroleum Co.'s No. 7 Kelly, top pay 3,647 feet, total depth 3,665 feet, initial production 20 bbls. in three hours, by heads.

Marathon Oil Co.'s No. 23 Burton, top pay 3,659 feet, total depth 3,700 feet, initial production 96 bbls. per hour; No. 73 Cross, top pay 3,638 feet, total depth 3,664 feet, initial production 76 bbls. per hour; No. 19 Price, top pay 3,607 feet, total depth 3,643 feet, initial production 24 bbls. per hour; No. 7 Warren, top pay 3,617 feet, total depth 3,647 feet, initial production 88 bbls. per hour. Ray Oil Co.'s No. 8 Pinkston, top pay 3,602 feet, total depth 3,625 feet, initial production 75 bbls. per hour. Triway Oil Co.'s No. 1 Worrell, top pay 3,553 feet, total depth 3,620 feet, initial production 20 bbls. in two hours. Venable & McClanahan's No. 25 Birdwell, top pay 3,605 feet, total depth 3,627 feet, initial production 80 bbls. in 30 minutes; No. 26 Birdwell, top pay 3,610 feet, total depth 3,620 feet, initial production 75 bbls. in 30 minutes; No. 30 Birdwell, top pay 3,610 feet, total depth 3,634 feet, initial production 170 bbls. per hour. Wells, receiver's No. 2 Stone, top pay 3,628 feet, total depth 3,641 feet, initial production 34 bbls. in 15 minutes.

Smith County

Hinton's No. 1 Jackson, top pay 3,716 feet, total depth 3,817 feet, initial production 15 bbls. in 15 minutes. Gulf Production Co.'s No. 5 Alford, top pay 3,756 feet, total depth 3,758 feet, initial production 40 bbls. per hour through three-quarter inch choke. Hunt Production Co.'s No. 18-A Fair, top pay 3,623 feet, total depth 3,635 feet, initial production 27 bbls. in 14 minutes; No. 20-A Fair, top pay 3,649 feet, total depth 3,664 feet, initial production 31 bbls. in 17 minutes. Illinois Oil Co.'s No. 16 Mayfield, top pay 3,807 feet, total depth 3,811 feet, initial production 140 bbls. in two hours; No. 21 Mayfield, top pay 3,830 feet, total depth 3,832 feet, initial production 60 bbls. per hour.

Johnston & Owens' No. 8 Jackson, top pay 3,756 feet, total depth 3,758 feet, initial production 125 bbls. per hour. McCutcheon's No. 3 Wright, top pay 3,707 feet, total depth 3,712 feet, initial production 20 bbls. in 20 minutes. Magnolia Petroleum Co.'s No. 25 Wright, top pay 3,655 feet, total depth 3,665 feet, initial production 24 bbls. in 15 minutes through 1-inch choke. Roberts Brothers' No. 1-B Lanham, top pay 3,775 feet, total depth 3,776 feet, initial production 10 bbls. in 15 minutes. through three-quarter inch choke. Wheeler Oil Corp.'s No. 4 Patterson, top pay 3,718 feet, total depth 3,719 feet, initial production 20 bbls. in 40 minutes.

Upshur County

Atlantic Oil Producing Co.'s No. 17 Moyer, top pay 3,582 feet, total depth 3,603 feet, initial production 100 bbls. per hour; No. 19 Porter, top pay 3,682 feet, total depth 3,697 feet, initial production 95 bbls. per hour. Hart, receiver's No. 2 Starr, top pay 3,581 feet, total depth 3,587 feet, initial production 30 bbls. in 30 minutes. Stroube & Stroube's No. 21 Mackey, top pay 3,660 feet, total depth 3,664 feet, initial production 30 bbls. in 40 minutes. Sun Oil Co.'s No. 1-A Saulter, top pay 3,740 feet, total depth 3,742 feet, initial production 25 bbls. per hour, swabbing. Tarver's No. 5 Free, top pay 3,659 feet, total depth 3,671 feet, initial production 45 bbls. in 30 minutes. Twin Oil Co.'s No. 4 Mackey, top pay 3,700 feet, total depth 3,704 feet, initial production 12 bbls. in 15 minutes.

Anderson County (Camp Hill Area)

Gulf Production Co.'s No. 1 M. J. Ross, dry and abandoned at 5,476 feet; No. 1 Flint & Scott, location abandoned; No. 1 De Laney, location abandoned; No. 1 Calloway, location abandoned.

Falls County

Davidson's No. 1 Bozeman, dry and abandoned at 2,935 feet.

Limestone County

Crawford's No. 1 Vol De Long, total depth 2,807 feet, initial production estimated 100,000 feet gas per day.

Morris County

Joiner Ranch Development Co.'s No. 1 Reese, dry and abandoned 3,511 feet.

Smith County

Doctor Garland's No. 1 Bartlett, dry and abandoned at 3,102 feet.

Van Zandt

Acker's No. 1 Anderson, dry and abandoned at 1,850 feet. Humble Oil & Refining Co.'s No. 7 Sanger Brothers, total depth 2,889 feet, initial production 45 bbls. first hour through three-quarter inch choke. Pure and Humble Oil & Refining Co.'s No. 1 Ray, total depth 1,204 feet, initial production 8 bbls. per day, pumping.

Wood County

Hill and Hill's No. 1 Phillips, dry and abandoned at 4,737 feet.

ROCKY MOUNTAIN RUNS

Production estimates for week ended April 20, follow:

WYOMING

	Bbls.
Salt Creek	17,540
Big Muddy	1,690
Badger Basin	40
Black Mountain	200
Byron	1,200
Dallas Derby	640
Dutton Creek	70
Elk Basin	Shut in
Ferris	30
Frannie	10
Garland	1,470
Grass Creek	2,630
Hamilton Dome	1,440
Hudson	200
LaBarge	1,230
Lance Creek	690
Lost Soldier	1,710
Mule Creek	Shut in
Midway	80
Notches	Shut in
Oregon Basin	3,500
Osage	650
Pilot Butte	30
Rock River	1,440
South Casper	Shut in
Poison Spider	50
Teapot	20
Total Wyoming	36,720

MONTANA

	Bbls.
Buckley-Border	270
Cat Creek	750
Cut Bank	4,750
Kevin-Sunburst	3,450
Lake Basin	50
Pondera	1,200
Total Montana	10,670

COLORADO

	Bbls.
Florence	180
Ft. Collins and Wellington	430
Iles Dome	3,550
Moffatt	400
Orchard	90
Rangely	70
Tow Creek	190
Total Colorado	4,890

NEW MEXICO

	Bbls.
Artesia	810
Cooper Area	4,750
Eunice Area	6,320
Hobbs	30,210
Hogback	210
Jal	4,300
Lea Area	1,400
Maljamar	2,350
Rattlesnake	710
Table Mesa	90
Total New Mexico	51,050
Total Rocky Mountain Region	103,330

TRANSFERRED TO TULSA

Allen S. Hicks, sales engineer, Hydril Co., formerly in the Houston, Texas, office has been transferred to Tulsa for an indefinite period.

Trading in Crude Oils and Gasoline Futures on the Commodity Exchange

NEW YORK, Apr. 22—Following is a summary of trading in crude oil and gasoline futures on the Commodity Exchange for the week ending April 18:

Gasoline Futures

Gasoline futures on Commodity Exchange, Inc., were unchanged to two points lower in the nearby positions, while the far forward deliveries were one to two points higher. This is the second week in succession that the price of the nearby deliveries has shown a declining tendency, while that of the far forward positions has been steadily advancing. This has resulted in a widening of the spread between the quotations for the various deliveries from an average of 2½ points between the delivery months, to an average of five points at the present moment. The volume of sales during the past week continued fairly large, totaling 1,932,000 gallons, the largest portion of which, namely 1,218,000 gallons, was transacted in the September delivery at a high of 6.19 cents and a low of 6.12 cents per gallon (Federal tax included).

Crude Oil Futures

Crude oil futures on Commodity Exchange, Inc., were one-fourth to 1 cent lower in the June and July deliveries, while other positions were one-fourth to 3 cents higher, As in the case of gasoline futures, the spread between the prices for the various deliveries of crude oil futures has also widened from an average of about one-fourth cent to an average of slightly over one-half cent between each delivery month at the present moment. Although the market remained inactive, quotations, especially in the far forward positions, were firm throughout the week.

GASOLINE

	Close	High for week	Low for week	Sales (gallons)
June	5.85B	5 93	5.91	210,000
July	5.93B	6.03	6.00	126,000
Aug.	6.00B	6.11	6.02	126,000
Sept.	6.10B	6.19	6.12	1,218,000
Oct.	6.14N	....	....	.....
Nov.	6.18N	....	....	.....
Dec.	6.22B	6.25	6 24	252,000
Jan.	6.24N	....	....	.....
Feb.	6.26N	....	....	.....
Mar.	6.28N	....	....	.....
Total				1,932,000

The above prices for future delivery of gasoline are ex-licensed tanks in delivery areas and include 1 cent per gallon Federal tax.

CRUDE OIL

	Close	High for week	Low for week	Sales (barrels)
June	1.19N	....	....	.....
July	1.20N	....	....	.....
Aug.	1.21N	....	....	.....
Sept.	1.21½N	....	....	.....
Oct.	1.22N	....	....	.....
Nov.	1.22½N	....	....	.....
Dec.	1.23N	....	....	.....
Jan.	1.23½N	....	....	.....
Feb.	1.24N	....	....	.....
Mar.	1.24½N	....	....	.....

B—bid. N—nominal.

Gasoline trading in 1,000 bbl. units. Quotations for basis grade U. S. Motor, 55-59 octane, deliverable from Exchange licensed storage in Houston-Galveston, Texas, area. Crude oil trading in 2,000 bbl. units. Quotations for basis grade Oklahoma-Kansas, 36-36.9 gravity legally produced oil, deliverable from Exchange licensed storage in Houston-Galveston area and Cushing-Drumright, Oklahoma area. Other grades of gasoline and crude deliverable subject to premiums and/or discounts as set forth in Exchange by-laws. Gasoline prices include 1 cent Federal tax.

West Texas Fields

(Continued from Page 90)

2,845 feet, shot 300 quarts from 2,628-2,838 feet, initial production 137 bbls. per day pumping. W. E. Production Co.'s No. 1 Read, dry and abandoned 2,830 feet.

Ector County

Stanolind Oil & Gas Co.'s No. 6 Cowden, total depth 4,050 feet, shot twice, initial production 20 bbls. per day swabbing.

Fisher County

General Crude Oil Co.'s No. 4 George, top pay 3,084 feet, total depth 3,097 feet, treated with acid, initial production 400 bbls. per day swabbing.

Glasscock County

Shell Petroleum Corp.'s No. 3 Coffin, top pay 2,121 feet, total depth 2,153 feet, initial production 552 bbls. per day pumping.

Jones County

Fondran Production Co.'s No. 1 S. R. Cox, Jr., dry and abandoned 3,400 feet. Shappell's No. 1 Stevenson, dry and abandoned 2,110 feet.

Pecos County

Black's No. 2 Pecos Valley, top pay 1,562 feet, total depth 1,575 feet, initial production 20 bbls. Courbette Oil Co.'s No. 3-A Monroe, top pay 457 feet, total depth 460 feet, initial production 91 bbls. per day pumping.

Terrell County

Sides and others' No. 1 Phelps, temporarily abandoned 5,600 feet, elevation 2,185 feet.

Upton County

Stanolind Oil & Gas Co.'s No. 37 Burleson, top pay 1,988 feet, total depth 2,060 feet, initial production 223 bbls. per day pumping.

Ward County

Cook Drilling Co.'s No. 1 Wood, total depth 2,548 feet, plugged back to 2,527 feet, shot 100 quarts from 2,490-2,517 feet, initial production 6 bbls. of oil and 10 bbls. of water per day. California Co.'s No. 21 Durgin, top pay 2,394 feet, total depth 2,535 feet, shot 100 quarts, initial production 662 bbls. per day. Tex-Mex Petroleum Co.'s No. 4-B Shell-Sloan, top pay 2,600 feet, total depth 3,035 feet, initial production 480 bbls. per day pumping. Gulf Production Co.'s No. 39 Hutchings, top pay 2,552 feet, total depth 2,790 feet, shot, initial production 485 bbls. per day. Prince Brothers' No. 2 York, top pay 2,375 feet, total depth 2,538 feet, initial production 535 bbls. per day. Gulf Production Co.'s No. 55 O'Brien, total depth 2,787 feet, shot 200 quarts from 2,644-2,777 feet, initial production 497 bbls. per day.

Winkler County

Magnolia Petroleum Co.'s No. 9 Scarborough, top pay 2,862 feet, total depth 3,249 feet, initial production 70 bbls. per day. Barnsdall Oil Co.'s No. 1-B Brown and Altman, top pay 3,103 feet, total depth 3,210 feet, shot 110 quarts from 3,103-210 feet; initial production 290 bbls. per day.

COMPLETIONS IN PANHANDLE

Carson County

Texas Co.'s No. 5 Noel, top pay 3,265 feet, total depth 3,300 feet; initial production 150 bbls. per day, pumping.

Cottle County

Texas Co.'s No. 7 Johnson, dry and abandoned 3,894 feet, tested 5 bbls. oil and 300 bbls. salt water at 3,375-414 feet, shot oil 3,716 feet.

Gray County

British American Oil Co.'s No. 5 Smith, top pay 3,167 feet, total depth 3,209 feet, shot 200 quarts from 3,160-209 feet, initial production 233 bbls. per day, pumping. Clayton-Dwyer and others' No. 1 Taylor, total depth 3,150 feet, shot 120 quarts from 2,610-715 feet, initial production 8,588,000 feet of gas. Continental Oil Co.'s No. 10 Finley, dry and abandoned 3,157 feet. Kewanee Oil & Gas Co.'s No. 4-D Morse, top pay 2,593 feet, total depth 2,654 feet, shot 360 quarts from 2,553-653 feet, initial production 188 bbls. per day, pumping. Stanolind Oil & Gas Co.'s No. 10 Palmer, total depth 3,188 feet, plugged back to 3,055 feet, initial production 42 bbls. per day, pumping. Sulock Oil Co.'s No. 5 Morse, top pay 2,615 feet, total depth 2,700 feet, shot 380 quarts from 2,589-693 feet, initial production 208 bbls. per day, pumping.

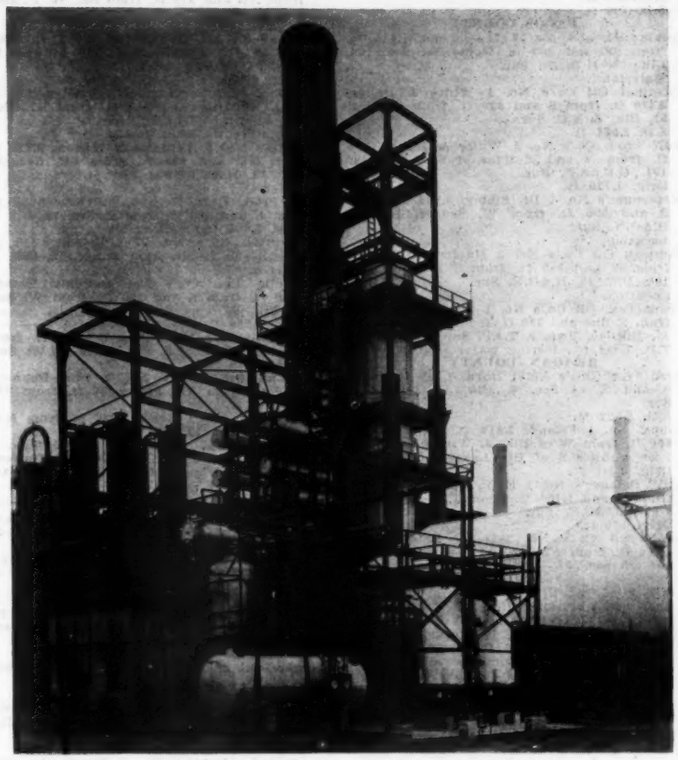
Hutchinson County

Brownie Oil Co.'s No. 1 Ware, top pay 2,966 feet, total depth 3,122 feet, shot 630 quarts from 2,957-3,120 feet, initial production 230 bbls. per day, pumping. Gulf Production Co.'s No. 6-B Whittenburg, top pay 2,920 feet, total depth 3,043 feet, shot 360 quarts from 2,919-3,043 feet, initial production 206 bbls. per day, pumping.

Wheeler County

Alma Oil Co.'s No. 7 Johnson, top pay 2,442 feet, total depth 2,512 feet, initial production 39 bbls. per day, pumping. Dumar Oil & Gas Co.'s No. 1 Atkins, top pay 1,643 feet, total depth 1,849 feet, initial production 36,500,000 feet of gas. King Royalty Co. and others' No. 1 Tindall, temporarily abandoned 2,287 feet, total depth 2,436 feet. Remo Oil Co.'s No. 1 Hunter, Kyle and Martin, top pay 2,207 feet, total depth 2,208 feet, initial production 50 bbls. per day; No. 1 Mankins, total depth 2,216 feet, initial production 50 bbls. oil and 10 bbls. water per day. Skelly Oil Co.'s No. 1 Belew, top pay 2,490 feet, total depth 2,528 feet, initial production 2,074 bbls. per day with 8,500,000 feet of gas; No. 1-B Perkins, total depth 2,537 feet, shot 180 quarts from 2,428-500 feet, initial production 94 bbls. per day. Texas Co.'s No. 5 Carwile, total depth 2,541 feet, plugged back to 2,500 feet, dry and abandoned.

New Absorption Oil Stripping Unit



Part of gasoline recovery plant recently completed at the Port Arthur, Texas refinery of The Texas Co. View shows control house, overhead condensing equipment, fractionating columns, vacuum cleaning system, two condensate accumulator drums and pump house

Left to right: E. B. Tilley, transportation department, Mexican Gulf Oil Corp.; J. W. Bradbury, Mexican Gulf Oil Corp., and T. R. Bibee, drilling superintendent Mexican Gulf Oil Corp., all of Tampico, Mexico; E. L. Lohren, vice president and sales manager, Cameron Iron Works; M. L. Cashion, drilling engineer, Gulf Production Co., and Tom Hunt, Hunt Wire Line Core Drilling Co., Houston, Texas

HEALDTON VACUUM HEARING

Oklahoma Corporation Commissioners have set May 2 for a hearing to determine whether operators in the Healdton oil field, Carter County, Oklahoma, should be allowed to produce their wells by pulling vacuum on the formations. This field was opened in August, 1913, and has produced from Healdton zone at depths 1,730 to 2,000 feet. The upper pay found at about 1,130 feet is known as the Glenn sand and had initial production 10 to 3,000 bbls. The wells in this field are of the stripper class.

FRANK B. FRETTER DIES

The passing of Frank B. Fretter, president of the National Refining Co. and one of the oil industry's pioneer refiners and marketers, also ends the life of the man who introduced premium grade motor fuels. A salesman of unusual ability, Mr. Fretter introduced White Rose gasoline as a premium fuel as early as 1905, nearly 25 years before premium fuels were generally offered by the industry. Mr. Fretter died in Cleveland on April 14 from a heart ailment.

William O. Kupper has been appointed by United States Rubber Products, Inc., 1790 Broadway, New York, to cover the Oklahoma oil fields as sales engineer, assisting Wesley Batten, Tulsa, supervisor of oil field sales.

West Texas Wildcats

(Continued from Page 90)

Miller Bros.' No. 1 fee, 1,900 ft. from N and 660 ft. from E line of Sec. 21, Blk. 97, P.S.L. Sur.
S.D. 2,137 ft.; slight show gas here.

Wood et al's No. 1 Hall, 350 ft. from S and 85 ft. from E, Sec. 11, Blk. 54½, 16 miles N of Van Horn, P.S.L. Sur.
S.D. 246 ft.

DAWSON COUNTY

Adams & Turner's No. 1 John Robinson, 1,320 ft. from N line, 1,320 ft. from W line of Sec. 46, Blk. M, E.L.R.R. Sur.
T.D. 4,860 ft.; to abandon.

ECTOR COUNTY

Atlantic Oil Prod. Co.'s No. 1 T. P. Land Trust, 440 ft. from N and W of SE Sec 11, Blk. 43, Twp. 1s. T.&P. Sur.
T.D. 4,391 ft.; plugged back to 4,265 ft.; swabbing.

Barnsdall Oil Corp.'s No. 2 Smith, 330 ft. from S and W lines of Sec. 1, Blk. 43, Twp. 1s. T.&P. Sur.
Elev. 3,064 ft.; T.D. 1,785 ft.; standardizing.

W. A. Black & Sons' No. 3 Connell, 330 ft. from S and 1,310 ft. from W lines of Sec. 1, Blk. B-16, P.S.L. Sur.
Drlg. 2,900 ft.

Callahan et al's No. 1 Connell, 330 ft. from N and 990 ft. from W, Sec. 10, Blk. 30, Twp. 1s.
T.P. 3,515 ft.; drlg. 3,600 ft.; flowed.

Empire Gas & Fuel Co.'s No. 1 Cummins, 440 ft. from S and E, Sec. 10, Blk. 45, Twp. 1n. T.&P. Sur.
Drlg. 2,710 ft.; gas at 2,660 ft.

Gulf Prod. Co.'s No. 1 Goldsmith, C of NW, Sec. 10, Blk. 44, Twp. 1s. T.&P. Sur.
T.D. 3,970 ft.; show gas 3,884 ft.; increase 3,900 ft. and 3,912 ft.

International Pet. Corp.'s No. 1 Cowden, 660 ft. from S and E, Sec. 25, Blk. 44, Twp. 2s. T.&P. Sur.
T.P. 4,147 ft.; T.D. 4,177 ft.; made 95-bbl. head.

Landreth Prod. Co.'s No. 1 Blakeney, 440 ft. from N and E, Sec. 28, Blk. 43, Twp. 1n. T.&P. Sur.
Cellar.

Landreth Prod. Co.'s No. 1-B O. B. Holt, 660 ft. from N and 1,980 ft. from E lines of Sec. 19, Blk. "A," P.S.L. Sur.
Drlg. 1,168 ft.

Landreth Prod. Co.'s No. 1 Cowden Heirs, 440 ft. from S and W, Sec. 13, Blk. 44, Twp. 1n. T.&P. Sur.
Drlg. 3,656 ft.

Landreth Prod. Co.'s No. 2 Scharbauer, 2,300 ft. from N and 440 ft. from W, Sec. 13, Blk. A.
Rigged up standard tools.

Penrose et al's No. 1 Kloh & Rumsey, 2,310 ft. from S and E, Sec. 31, Blk. 45, Twp. 1s, T.&P. Sur.
Elev. 3,154 ft.; top lime 3,895 ft.; drlg. 4,050 ft.

C. L. Peters' No. 1 Connell, 330 ft. from N and E lines of NW of Sec. 12, Blk. B-16, P.S.L. Sur.
Rigged up standard tools.

EL PASO COUNTY

Tri-State Oil Co.'s No. 1 Kinkel, 190 ft. from N and 550 ft. from E, Sec. 227, A.T.&S.F Sur.
S.D. 225 ft. for csg.

FISHER COUNTY

George Callihan et al's No. 1 Herring, 2,310 ft. from S and 330 ft. from W lines of Sec. 192, Blk. 1, B.B.B.&C. Sur.
Elev. 1,304 ft.; drlg. 1,324 ft.

Tide Water Oil Co. and others' No. 1 W. E. Hittson et al, 1,320 ft. from N and 660 ft. from W, Sec. 177, Blk. 2, H.&T.C. Sur.
Derrick.

GARZA COUNTY

N. L. Richards' No. 1 Sullivan, 330 ft. from N and W, Sec. 3, Blk. 5, K. Aycock Sur.
Elev. 2,534 ft.; drlg. 2,370 ft.

GLASSCOCK COUNTY

Lace & Pickens' No. 2 Turner, 1,650 ft. from N and 2,310 ft. from E lines of Sec. 19, Blk. 33, Twp. 2s, T.&P. Sur.
Drlg. 1,626 ft.

John I. Moore et al's No. 1 J. S. McDowell, 1,980 ft. from N line and 660 ft. from E line of Sec. 22, Blk. 34, Twp. 2s, T.&P. Sur.
Topped lime 9,471 ft.; show oil and gas 9,484-9,520 ft.; cmtd. 7⅝-in. csg. at 9,470 ft.; increase oil 9,594-9,600 ft. and 9,633-55 ft.; S.D. 9,936 ft. to test.

HOWARD COUNTY

Clay Bros. & White's No. 1 Read, 330 ft. from S and 1,650 ft. from W, Sec. 46, Blk. 30, Twp. 1n, T.&P. Sur.
Location.

Dorn et al's No. 1 Kloh, 330 ft. from S and E, Sec. 45, Blk. 30, Twp. 1n, T.&P. Sur.
Elev. 2,287 ft.; T.P. 2,585 ft.; T.D. 2,791 ft.; flowing 60 bbls. day.

C. Henson et al's No. 1 B. Scott, 330 ft. from N and 1,650 ft. from E, Sec. 93, Blk. 29, T.&P. Sur.
T.D. 1,332 ft.; swabbed 23 bbls. in 10 hrs.

John I. Moore et al's No. 1 Snyder, 330 ft. from S and W, Sec. 28, Blk. 30, Twp. 1s, T.&P. Sur.
Rigged up machine.

Iron Mountain Oil Co.'s No. 6 Reed, 330 ft. from S and W lines of Sec. 46, Blk. 30, Twp. 1n, T.&P. Sur.
Drlg. 1,515 ft.

Slagel's No. 1 Foster, 990 ft. from S and 330 ft. from W, Sec. 43, Blk. 29.
Drlg. 2,550 ft.

JEFF DAVIS COUNTY

C. M. Joiner's No. 1 Jones & Coffield, 770 ft. from N and 1,322 ft. from E, Sec. 8, Blk. 3, H.&T.C. Sur.
Drlg. 1,000 ft.

JONES COUNTY

Campbell et al's No. 1 Rowell, in E half of W half, Sec. 6, T.&P. Sur.
T.D. 950 ft.; fishing.

Campbell et al's No. 1 Enevill, 1,400 ft. from N and 370 ft. from W, Sec. 2, M.E.&P. Sur., ¼ mile S of Anson.
S.D. 2,210 ft.

Cal-Tex Oil Co.'s No. 1 Smith, 1,400 ft. from S and 2,000 ft. from E, Sec. 25, Blk. 19, T.&P. Sur.
S.D. 2,600 ft.

Dr. C. E. Johnson's No. 1 Young, 1,800 ft. from N and 750 ft. from W of SE 200 acres of B. Travenio Sur.
Fishing 2,000 ft.

Owen et al's No. 1 Johnson & Dunwoody, 3,750 ft. from S and 330 ft. from W, Sec. 6, Blk. 17, T.&P. Sur.
Spudded and S.D.

Richards et al's No. 1 Ransom, 200 ft. from N and E, Sec. 344, H. M. Clopton Sur.
S.D. 750 ft.

Robb & Brewer's No. 1 Evans, 200 ft. from S and E lines of N half of Sec. 7, Blk. 15, T.&P. Sur.
Drlg. 1,560 ft.

Sandyridge Oil Co.'s No. 1 P. Jones, 660 ft. from S and W of NW¼, Sec. 5, Blk. 15, T.&P. Sur.
Drlg. 350 ft.

T. O. Shappell's No. 1 Steele, 330 ft. from N and 2,000 ft. from E lines of Sec. 10, Blk. 15, T.&P. Sur.
Drlg. 1,730 ft.

Ungren & Frazier et al's No. 1 Steele, 1,450 ft. from S and 200 ft. from W lines of Sec. 8, Blk. 10, C. Allen Sur.
T.D. 1,207 ft.; skidding rig for new hole.

LOVING COUNTY

D. C. Evans' No. 1 W. D. Johnson, 2,310 ft from N and 1,650 ft. from W, Sec. 13 Blk. 37, Twp. 1. T.&P. Sur.
T.D. 2,032 ft.; cleaning out.

Mason Oil Co.'s No. 1 Kyle, 1,980 ft. from S and E, Sec. 22, Blk. 55, Twp. 1, T.&P. Sur.
T.D. 495 ft.; moved in rotary.

LYNN COUNTY

Hart Oil Co.'s No. 1 Edwards, 220 ft. from N and 200 ft. from W of SE Sec. 39, L.&S.V. Sur
Elev. 3,112 ft.; drlg. 4,521 ft.

MARTIN COUNTY

Wright & Scott's No. 1 Flannigan, 330 ft N. and E, Sec. 22, Blk. 37, Twp. 1s, T.&P. Sur.
S.D. 100 ft. for csg.

MITCHELL COUNTY

Sawtell & Grueber's No. 1 Morrison
S.D. 1,020 ft.

McCULLOCH COUNTY

Brock & Seward's No. 1 McCall, 2,250 ft. from S and 2,139 ft. from E lines of Sec. 2, John Ware Sur.
S.D. 626 ft.

Hones et al's No. 1 Cox, 450 ft. from S and 150 ft. from E, David Pope Sur.
S.D. 846 ft.

Miller et al's No. 1 Black, 160 ft. from N and 175 ft. from E, Sur. 290, H.&T.C. Sur., 3 miles E of Placid.
Drlg. 780 ft.

Geo. Poulter's No. 1 Wyres, 1,350 ft. from E, 150 ft. from W lines of J. Heinsohn Sur. No. 633.
Drlg. 175 ft.

Skaggs & Brewer's No. 1 Dunn, 190 ft. from S and 570 ft. from E, Sec. 951, T. L. Kartig Sur.
S.D. 700 ft.

PECOS COUNTY

Adams et al's No. 2 Masterson, 1,630 ft. from SE and 330 ft. from SW, Sec. 104, Blk. 10, H.&G.N. Sur.
Material.

Cardinal Oil Co.'s No. 1 White & Baker, 2,310 ft. from S and 330 ft. from W, Sec. 51, Blk. Z, T.C. Sur.
S.D. 2,081 ft.

Gulf Prod. Co.'s No. 5 White & Baker, 330 ft. from N and E lines of Sec. 88, Blk. 194, G.C.&S.F. Sur.
Drlg. 1,710 ft.

Messenger's No. 1 Dr. Sibley, 4,930 ft. from S and 990 ft. from W, Sec. 6, Blk. 9, H.&G.N. Sur.
Location.

Samwan Oil Co.'s No. 2 Masterson, 330 ft. from W and 990 ft. from S lines of Sec. 104, Blk. 10, H.&G.N. Sur.
Location.

Trans-Tex. Oil Co.'s No. 1 Caldwell, 330 ft. from E line and 330 ft. from S line of Sec. 37, Blk. 40, Twp. 9, T.&P. Sur.
T.D. 1,856 ft.; testing water shut-off

REAGAN COUNTY

Byrd-Frost Inc.'s No. 1 Boyd, 1,320 ft. from S and E of Sec. 6, Blk. E, L.V.S.&V. Sur.
S.D. 2,522 ft.

Dobbs' No. 1 Friend, 2,310 ft. from S and 660 ft. from W of Blk. 3, Wm. Allen Sur., 3 or 4 miles S of Big Lake.
Drlg. 2,345 ft.

E. V. Belcher's No. 1 E. V. Belcher, 467 ft. from N and 1,400 ft. from E, Sec. 4, Blk. 4½, G.C.&S.F. Sur.
Drlg. 110 ft.

Skelly Oil Co.'s No. 1-D H. S. Grayson, 1,980 ft. from N line and 660 ft. from W line of Sec. 33, Blk. 3, University Land Sur.
S.D. 9,967 ft.; to plug back for Permian lime well 3,000-3,100 ft.

REEVES COUNTY

J. E. Cunningham's No. 1 Altman, 2,810 ft. from N line and 1,980 ft. from E line of Sec. 1, C. C. Wyatt Sur.
Top Delaware sand (by driller) 3,815 ft.; T.D. 4,090 ft.; to test.

Herbert Oil Co.'s No. 1 Williams & Walker, 5,280 ft. from S and 1,320 ft. from E, Sec. 17, Blk. 6, H.&G.N. Sur.
S.D. 84 ft. for csg.

K. Slack et al's No. 1 Reeves, 1,980 ft. from N and W, Sec. 20, Blk. 56, P.S.L. Sur.
Standardizing.

RUNNELS COUNTY

Dennis et al's No. 1 Wash, 550 ft. from N and 560 ft. from E of W half, Sec. 133, E.T.R.R. Sur.
Spudded and S.D.

Melrose Oil Co.'s No. 1 L. P. Woods, 150 ft. from NE lines and 3,475 ft. from W line of survey, Willett Holmes Sur. No 100.
S.D. 2,507 ft.

R. Wells' No. 1 James, 396 ft. from N and 330 ft. from E of James tract in Sec. 16, D. Diaz Sur.
S.D. 1,100 ft.

SCHLEICHER COUNTY

John M. Cooper et al's No. 1 Bert Page, 1,290 ft. from N line, 1,470 ft. from W line of Sec. 40, Blk. L, G.H.&S.A. Sur.
T.D. 6,045 ft.; testing; showing little oil.

W. C. Proctor et al's No. 1 Judkins & Spencer, C SW ¼ Sec. 4, Blk. V-28.
Drlg. 230 ft.

SCURRY COUNTY

M. L. Goos et al's No. 1 J. E. Murphy, 330 ft. from N and 1,650 ft. from E, Sec. 114, Blk. 97, H.&T.C. Sur.
Rigged up spudder.

McLaughlin's No. 1 Allen, 1,331 ft. from N and 1,338 ft. from E, Sec. 295, Blk. 97.
Drlg. 1,605 ft.

STONEWALL COUNTY

Barnsdall Oil Co.'s No. 1 S. Young, 350 ft. from N and E, Sec. 26, Austin & Williams Sur. 349.
Location.

Merry Bros. and Perrini et al's No. 1 Williams, C SW of SW Sec. 6, Blk. C, A.B &M. Sur.
T.D. 3,080 ft.; underreaming csg.

SUTTON COUNTY

Texas et al's No. 1 Mower, 1,980 ft. from S and W of Sec. 39, Blk. 5, T.W.&N.G. Sur.
Top White lime 4,527 ft.; S.D. 4,750 ft., contract depth.

Paul C. Teaf No. 1 G. S. Allison, 660 ft. from S and W, Sec. 49, Blk. A, G.W.T.&P. Sur.
Location.

TAYLOR COUNTY

Eastland Oil Co.'s No. 1 Tittle, 660 ft. from N and W, Sec. 37, Blk. 19, T.&P. Sur., 1 mile NE of Trent.
Machine

TOM GREEN COUNTY

Jacobs et al's No. 2 DeLong, 150 ft. from N and 450 ft. from E, James Webb Sur. No. 83.
Spudded and S.D.

UPTON COUNTY

Baldridge Oil Co.'s No. 1 S. Peck, 440 ft. from S and E, Sec. 29, Blk. 41, Twp. 4s, T.&P. Sur.
Elev. 2,890 ft.; drlg. 3,040 ft.

Gulf Prod. Co.'s No. 103 McElroy, 1,980 ft from S and 660 ft. from W, Sec. 197, Blk. F, C.C.S.D.&R.G.N.G. Sur.
Drlg. 12,410 ft.

Humble Oil & Ref. Co.'s No. 1 Pollock, C of NW, Sec. 4, Blk. M.
Drlg. 4,462 ft.

King Mountain Pet. Co.'s No. 1 Sherk, 330 ft. from S and W, Sec. 29, Blk. 1, M.K.&T. Sur.
S.D. 2,500 ft.

Williams & Williams Drlg. Co.'s No. 1 Robbins, 1,800 ft. from S and 1,900 ft. from E, Sec. 4, G.C.&S.F. Sur.
Drlg. on iron at 2,040 ft.; 400 ft. oil in hole.

WARD COUNTY

Atlantic O. P. Co.'s No. 2 Miller, 504 ft. from NE and 330 ft. from SE, W. F. Russell No. 3 Sur.
Drlg. 2,165 ft.

Alexander's No. 1 Richter, 1,650 ft. from NW, 1,170 ft. from NE line of Sec. 27, Blk. 34, H.&T.C. Sur.
Drlg. 2,166 ft.

Bradford et al's No. 1 E. R. Allen, 660 ft. from NW line and 551 ft. from NE line Sec. 11, Blk. 5, H.&T.C. Sur.
T.D. 1,520 ft.; shut down.

Caprito's No. 1 Hardage & Wilson, 2,310 ft from NE and 990 ft. from SE, Sec. 11, Blk. 34, H.&T.C. Sur.
Material.

Gulf Prod. Co.'s No. 56 O'Brien, 2,310 ft. from N and 330 ft. from E, Sec. 18, Blk F.
Drlg. 2,685 ft.; bailing oil.

Gulf Prod. Co.'s No. 57 O'Brien, 2,310 ft. from S and 330 ft. from E, Sec. 18, Blk. F.
Derrick.

Magnolia Pet. Co.'s No. 2 Sealy Estate, 2,310 ft. from S and 330 ft. from W, Sec. 43, Blk. F.
Drlg. 1,550 ft.

Rector Oil Co.'s No. 1 Monroe, 660 ft. from SE and NE, Sec. 2, Blk. 1, W.&N.W. Sur.
Drlg. 2,946 ft.

Sageland Oil Corp.'s No. 2 Pure-Bennett 1,650 ft. from NW and 2,310 ft. from SW S.D. 320 ft.

Jerry Sines' No. 1 Brown, 330 ft. from NW and NE, Sec. 13, Blk. 5, H.&T.C. Sur.
Drlg. 2,748 ft.

West Texas O. & R. Co.'s No. 1-C University, 330 ft. from N and E, Sec. 6, Blk. 16.
Drlg. 1,960 ft.

WINKLER COUNTY

Barnsdall Oil Co.'s No. 1 Brown & Altman, 2,310 ft. from S and E, Sec. 6, Blk. B-5. Cellar.

Green Prod. Co.'s No. 1 J. F. Cross, 330 ft. from N and 2,310 ft. from W, Sec. 4, Blk. B-10, P.S.L. Sur.
Material.

Harry Adams' No. 2 Scarborough, 990 ft. from N line and 990 ft. from W line, Sec 2, Blk. 77, P.S.L. Sur.
Location.

Humble Oil & Ref. Co.'s No. 2-A Walton, 660 ft. from S and W, Sec. 48, Blk. 26. Derrick.

Magnolia Pet. Co.'s No. 6 Watton, 330 ft. from S and 1,650 ft. from W, Sec. 1, Blk. 26, P.S.L. Sur.
T.D. 2,960 ft.; standard derrick.

Maxwell & Atlantic's No. 2 Daugherty, 990 ft. from S and 330 ft. from E, Sec. 11, Blk. 26, P.S.L. Sur.
Drlg. 2,675 ft.; 5,000,000 ft. gas.

J. C. Maxwell's No. 1 Brown & Altman, 2,310 ft. from N and 990 ft. from W, Sec. 6, Blk. B-5.
Mtaerial.

Mid-Continent Pet. Corp.'s No. 2 Howe, 1,650 ft. from N and 330 ft. from W, Sec. 13, Blk. 26.
T.D. 3,989 ft.; T.P. 2,800 ft.; flowing 20 bbls. oil per day.

Richardson's No. 1 Walton, 1,010 ft. from S and 330 ft. from W, Sec. 1, Blk. B-3.
S.D. 2,638 ft.; increase gas here.

Sayre Oil Co.'s No. 2 Lum Daugherty, 990 ft. from S and 330 ft. from E lines of Sec. 2, Blk. 26, P.S.L. Sur.
T.D. 2,971 ft.; ran tubing.

Sayre Oil Co.'s No. 1 Leck, 330 ft. from S and E, Sec. 2, Blk. 26, P.S.L. Sur.
Rigged up rotary 2,749 ft.

Skelly Oil Co.'s No. 2 Halley, 1,320 ft. from N and 2,200 ft. from E, Sec. 25, Blk. B-11. P.S.L. Sur.
S.D. 3,090 ft.

Stosi Oil Co.'s No. 1 Lowett, 330 ft. from N and E, Sec. 26, Blk. 26, P.S.L. Sur.
T.D. 2,595 ft.; standardized.

Sun Oil Co.'s No. 1 Halley, 2,200 ft. from N and 440 ft. from E, Sec. 24, Blk. B-12, P.S.L. Sur.
T.D. 2,656 ft.; well blew out; now killing well.

Texas Pacific Coal & Oil Co.'s No. 2 Daugherty, 1,650 ft. from S and 330 ft. from E, Sec. 2, Blk. 26, P.S.L. Survey.
Drlg. 2,550 ft.

YOKUM COUNTY

C. J. Davidson et al's No. 1 Bennett, 1,320 ft. from N and E, Sec. 678, John H. Gibson Sur.
Cellar.

Texas Panhandle Wildcats

Week Ending April 20

CARSON COUNTY

McClintock et al's No. 1 Jordan, 660 ft. N, 413 ft. W Sec. 105, Blk. 4, I.&G.N. Sur.
T.D. 3,134 ft.; putting on pump.

McGill's No. 2 Cooper, 330 ft. from S and 990 ft. from W of N½ of SE¼ Sec. 4, Blk. 9, I.&G.N. Sur.
T.P. 3,037 ft.; T.D. 3,065 ft.; shot; C.O.

Phillips Pet. Co.'s No. 2 Cooper, 327 ft. from N and 989 ft. from W lines of S½ of SE¼ of Sec. 4, Blk. 9, I&G.N. Sur.
Drlg. 430 ft.

Cy Reiger's No. 1 Chapman, 330 ft. N and 1,650 ft. E of E 240 acres, Sec. 52, Blk. 25, H.&G.N.
Location.

Robert Watchorn's No. 1 Eller, 330 ft. from S and E lines of W½ of SE¼ of Sec. 9, Blk. 7, H.&G.N. Sur.
T.D. 2,783 ft.; fishing.

CHILDRESS COUNTY

Humble O. & R. Co.'s No. 1-A Smith, 1,288 ft. S and 1,407 ft. W, Sec. 14, Blk. 9, H.&G.N. Sur.
Drlg. 3,250 ft.

Watchorn O. & G. Co.'s No. 1 Low, C NW SE¼ Sec. 417, W.&N.W. Sur., S of Kirkland.
Show gas 4,430-40 ft., and 4,450-60 ft.; drlg. 4,609 ft.

COTTLE COUNTY

Texas Co.'s No. 7 Lee K. Johnson, 1,960 ft. W of W line of Sec. 35, Blk. L, S.P.R.R. Foard County, and 500 ft. N of Anglin Sur.
Drlg. 3,741 ft.

DALLAM COUNTY

Eben Warner's No. 1 Jarboe, 1,320 ft. from S line, 415 ft. from W line, Sec. 2, B.&B. Sur.
S.D. 3,200 ft.; may abandon.

GRAY COUNTY

Bell O. & G. Co.'s No. 1 Furneaux, 434 ft. from S and E lines of SE¼ of Sec. 110, Blk. B-2, H.&G.N. Sur.
Rig.

Champlin O. & R. Co.'s No. 1 Taylor, 330 ft. from S and W of Sec. 6, Blk. 2, H.&G.N. Sur.
Drlg. plug at 2,320 ft.

Clayton et al's No. 1 Taylor, 330 ft. N and W of NE¼ Sec. 51, Blk. B-2, H.&G.N. Sur.
Drlg. 3,040 ft.

Tom Doswell's No. 1 Herndon, 330 ft. from S and W lines of SE¼ of SW¼ of Sec. 166, Blk. 3, I.&G.N. Sur.
Rig.

Farliss et al's No. 1 Ball, 330 ft. from S and E lines of NW¼ of Sec. 6, Blk. 1, B.&B. Sur.
Drlg. 100 ft.

Harry Foster's No. 1 Johnson, 330 ft. from N and E lines of Sec. 21, L. L. Erwin Sur.
Rig.

Warner's No. 1 Taylor, 330 ft. N and W of SE¼ Sec. 3, Blk. 3, A. W. Wallace Sur.
T.D. 1,898 ft.; set csg.

Irish-American Oil Co.'s No. 1-B Morse, 990 ft. S and 330 ft. E, W½ NE Sec. 54, Blk. 25, H.&G.N. Sur.
T.D. 2,780 ft.; shot; C.O.

Jeffries' No. 1 Sailor, 330 ft. from N and E of E½ of NW¼ Sec. 31, Blk. 3, I.&G.N. Sur.
T.D. 1,040 ft.; standardizing.

McLaughlin et al's No. 1 Baggerman, 330 ft. from S and E of NW¼ Sec. 64, Blk. 1, I.&G.N. Sur.
Rig.

Phillips Pet. Co.'s No. 1 Saunders, 330 ft. from S and 345 ft. from W lines of S½ of NE¼ of Sec. 3, Blk. 1, B.S.&F. Sur.
Drlg. 615 ft.

Plains Holding Co.'s No. 1 Morse-Gulf, 330 ft. S and W, Sec. 57, Blk. 25, H.&G.N. Sur.
Material.

Texas Co.'s No. 2-C Taylor, 330 ft. from N and E of E½ Sec. 52, Blk. B-2, H.&G.N. Sur.
Drlg. 2,470 ft.

Vulcan Oil Corp.'s No. 1-A Kinnard, 1,180 ft. from N and 150 ft. from W lines of E½ of SW¼ of Sec. 41, Blk. 25, H.&G.N. Sur.
Drlg. 1,522 ft.

HUTCHINSON COUNTY

Gulf Prod. Co.'s No. 1 Pitcher, 330 ft. N and W, Sec. 19, Blk. M-21, T.C. Sur.
Rig.

Huey et al's No. 1 Christian, 220 ft. from S and 330 ft. from W, Sec. 32, Blk. T, A.&B. Sur.
T.D. 3,175 ft.; P.B. to 2,996 ft.; est. 6,000,000 to 8,000,000 ft. of gas.

Phillips Pet. Co.'s No. 1 Daniel Dial, 330 ft. from S and 325 ft. from E lines of Sec. 36, Blk. M-23, T.C.R.R. Sur.
Location.

Stinnett Oil Co.'s No. 1 Starnes, 330 ft. from N and 275 ft. from W of E½ of NW¼ Sec. 22, Blk. M-23, T.C. Ry. Sur.
T.D. 480 ft.; pipe stuck.

Texlivania Oil Co.'s No. 1 Thompson, 440 ft. N and 2,735 ft. E, Sec. 15, Blk. M-22, T.C. Sur.
T.D. 2,070 ft.; C.O.

MOORE COUNTY

Sunray and Barnsdall Oil Companies' No. 1 Jones, 330 ft. from N and W of E½ Sec. 164, Blk. 3-T, T.&N.O. Sur.
T.D. 3,636 ft.; P.B. to 3,619 ft.; acidized; testing.

Texas Interstate P. L. Co.'s No. 1 Brown, 330 ft. N and W of SE¼ Sec. 22, Blk. 44, H.&T.C. Sur.
Drlg. 500 ft.

OCHILTREE COUNTY

U. S. Oil Corp.'s No. 1 W. R. Norris, 330 ft. S and 990 ft. E, Sec. 212, Blk. 43, H. &T.C. Sur.
Rigged up.

RANDALL COUNTY

English et al's No. 1 Oxnard, 350 ft. from N and 1,320 ft. from E lines of NE¼ Sec. 85, Blk. 2, A.B.&M. Sur.
T.D. 5,636 ft.; may abd.

WHEELER COUNTY

C. & H. Drlg. Co.'s No. 1 Binkley, 330 ft. from S and W lines of NE¼ of Sec. 25, Blk. 24, H.&G.N. Sur.
T.D. 1,800 ft.; est. 10,000,000 to 15,000,000 ft. of gas; rig burned.

J. G. Cloud's No. 1 Tinley, 990 ft. from N and W of NE¼ Sec. 26, Blk. 24, H.&G. N. Sur.
T.D. 1,970 ft.; pulling big pipe.

Dumar O. & G. Co.'s No. 1 Atkins, 660 ft. from N and W of E½ Sec. 49, Blk. 22, H.&G.N. Sur.
Drlg. 1,850 ft.; gauged 30,000,000 ft. of gas at 1,800 ft.

Johnson et al's No. 1 Pryor, 330 ft. N and E of E½ NE¼ Sec. 48, Blk. 13, H.&G.N. Drlg. 1,470 ft.

Martin & Dubose's No. 1 Schwarting, 330 ft. from S and 990 ft. from W lines of SE¼ of Sec. 53, Blk. 13, H.&G.N. Sur.
Drlg. 360 ft.

Smith Bros.' No. 1-B Harlan, 330 ft. from N and 990 ft. from W lines of W½ of SW¼ of Sec. 49, Blk. 24, H.&G.N. Sur.
Drlg. 300 ft.

Smith Bros.' No. 1 Setter, 330 ft. from N and E of NW of NE¼ Sec. 33, Blk. 24, H.&G.N. Sur.
Drlg. 1,850 ft.

East Central Texas Wildcats

(Continued from Page 91)

E of No. 1 Ball, or N 9 deg. 35 ft. E. 1,-905 ft. from No. 1 Ball.
T.D. 4,831 ft.; made 500,000 ft. gas; drlg. plug to test; elev. 421 ft.

Hoover et al's No. 1 McFall, 150 ft. S and W lines, S. Garrison Sur., E of Mexia. Location.

GREGG COUNTY

O. T. Clark's No. 1 Williams, 2,100 ft. from S and 2,400 ft. from W of D. Hill Sur., 3 miles NE of Longview.
T.D. 3,620 ft.

HENDERSON COUNTY

Great States' No. 1 Ansley, 1,724 ft. W and 300 ft. S of SE cor. of M. Matthews Sur., N. H. T. Thompson Sur.
S.D. 3,304 ft.

Taubert & McKee's No. 1 M. T. Dobbs, NW cor. of east Dobbs 100-ac. tract, 4 miles E of Malahoff and S of Railroad, George Aldrick Sur.
T.D. 4,048 ft.

H. M. Wilson's No. 1 fee, 970 varas S of NE cor. of 943-ac. tract, 5 miles N of Malahoff.
Derrick.

Winn et al's No. 1 Geo. Forrester, cen. of 114-ac. tract, S. Cherry Sur., S of Murchison.
Drlg. 1,886 ft.

HOPKINS COUNTY

D. A. Hale et al's No. 1 L. M. Hall, 200 ft. from N and E lines of 70-ac. tract, 1 mile SE of Miller Gros. A. Caro Sur.
S.D. 2,950 ft.

HUNT COUNTY

Cauble & Thompson's No. 1 Reed, 330 ft. N of northerly NE cor. of C. B. Payne Sur., but in F. Thweatt Sur., 3 miles SE of Greenville.
Coring 3,462 ft.

J. F. Morrissey & Co., Inc.'s No. 1 Fry, 543 ft. from N and 200 ft. from E of 146-ac. tract, C. Davis Sur.
Location.

H. G. Samson's No. 1 Phillips, 1,200 ft. E of Winan's No. 1 Phillips, University Lands Sur., 2 miles W of Commerce.
Elev. 522 ft.; S.D. 5,020 ft.

KAUFMAN COUNTY

Germany et al's No. 1 Clark, 961 ft. N and 1,000 ft. W of tract, S. Eden Sur.
Washing to bottom; T.D. 1,780 ft.

Murry & Emerson's No. 1 G. W. Martin, 1,660 ft. from W and 250 ft. from N of 140-ac. tract, from W. L. C. Butler Sur., 1 miles NE of Kemp.
S.D. 27 ft.

L. P. Kean's No. 1 J. B. Hunter, R. Sowell Sur., 300 ft. from SW and 150 ft. from SE of 50-ac. tract, 4 miles S of Terrell.
S.D. 3,296 ft.

LIMESTONE COUNTY

J. Edward Mills' No. 1 Hunt, 200 ft. from N, 350 ft. from W line 34.75-ac. tract, Israel Wood Sur., 3 miles NE of Kosse.
T.D. 3,637 ft.; fishing.

C. F. Carter's No. 1 Dean, 660 ft. from SE and 330 ft. from SW lines of 75-ac. tract, P. Valella Sur., 3¼ miles SW of Mexia.
T.D. 1,758 ft.

Doughtry et al's No. 1 S. Welch, 150 ft. from NW and 900 ft. from NE of 77.64-acre tract in A. Varilia Sur., 4 miles W of Grossbeck.
Coring 2,968 ft.; top sand 2,940-51 ft.; show oil.

McLENNAN COUNTY

Mahan et al's No. 1 Mann, 1,100 ft. W of Simms Oil Co.'s No. 1 Mann, Carlos Tampo Sur., W of Robertsonville.
Drlg. 605 ft.

NACOGDOCHES COUNTY

A. D. Boyd's No. 1 Mattaner, 400 ft. S and 1,000 ft. E of J. A. Cherino Sur., near Cherino.
Location.

K. L. McHenry's No. 1 E. J. Campbell, Manvel de los Santos Coy Sur., 1,500 ft. from NW cor. of 181-ac. tract, 7 miles NW Nacogdoches.
Drlg. 125 ft.

Morrow et al's No. 1 C. B. Watkins, 150 ft. from N line and 330 ft. from NW lines of 160-ac. tract, 3 miles S of Caro, H. Y. Bailey Sur.
Fishing 4,170 ft.

NAVARRO COUNTY

Bennett Brothers' No. 1 T. E. Stewart, 150 ft. from NE line of lease, 10 miles SW of Corsicana, Wm. R. Bowen Sur.
T.D. 1,186 ft.; S.D.

R. B. Codding et al's No. 1 Lela Kent, 450 ft. from S line and center of N and S lines of lease, 3 miles NE of Chatfield, C. B. Emmons Sur.
S.D. 1,340 ft.

W. J. Keeling et al's No. 1 J. F. Rushing 484 ft. from N line and 150 ft. from W line of 184-ac. tract, 6 miles SW of Richardson, Henry Ford Sur.
T.D. 2,881 ft.

McCullough et al's No. 1 C. Berry, 330 ft. from SE cor. of 35-acre tract, 1 mile W of Dawson, William Moss Sur.
S.D. 1,182 ft.

Wiggins et al's No. 1 Donoho, 450 ft. from N and 1,101 ft. from E lines in John Couple Sur., SW of Corsicana.
S.D. 1,439 ft.

RED RIVER COUNTY

Dinger's No. 1 W. T. Norris, 1,000 ft. from S and 1,900 ft. from W of 400-ac. tract, Jos. Guest Sur., 1 mile S of Detroit.
S.D. 1,861 ft.

Joiner's No. 1 D. Rust, C. C. Wilborn Sur., 334 ft. N and 354 ft. W of most southerly SE cor. of Sur., just south of Avery.
Rig.

RUSK COUNTY

Ben Lamb's No. 1 H. Leath, 330 ft. out of NW cor. of 185-ac. tract in L. J. Dooley.
S.D. 4,725 ft.; (corrected); may plug back.

Richardson's No. 1 Wood.
Derrick.

SMITH COUNTY

Cloud et al's No. 1 Dendall, 330 ft. from S and W of 55-ac. tract, J. Williams Sur., 3 miles E of Van Field.
S.D. 1,650 ft.

W. R. Harrison's No. 1 Rushing, J. Herring Sur. (O.W.D.D.).
T.D. 4,330 ft.; S. D.

TITUS COUNTY

S. Rotondi's No. 1 Lillianstun, 1,200 ft. E from NW cor. of J. Bodt Sur. and 330 ft. N, but in W. H. Crawford Sur., 5 miles NE of Talco.
Elev. 361 ft.; derrick.

VAN ZANDT COUNTY

J. H. Foster et al's No. 1 Breucher, 330 ft. out of SE cor. of tract, D. Clapp Sur., 4 miles SE of Wills Point.
S.D. 120 ft.

Green and Winn's No. 1 Eaton, 330 ft. out of most westerly SW cor. of J. Wilson Sur., 2 miles SE of Martin.
Drlg. 3,942 ft.

J. Beren et al's No. 1 Bryant, 483 ft. N of same operator's dry hole, Nacogdoches County School Land Sur.
W.O.S.R. 1,325 ft.

Beren et al's No. 2 Palmer, 544 ft. from S and 686 ft. from E of 69.5-ac. tract, Nacogdoches County School Land.
T.D. 1,324 ft.

Southwest Texas Wildcats

(Continued from Page 89)

Henderson & Harvey's No. 1 Chernosky, 330 ft. from S line, 660 ft. from W line, Sur. 226.
Drlg. 2,500 ft.

Magnolia Pet. Co.'s No. 1 Bennett, 330 ft. from S and W lines of Sur. 441.
Digging pits.

J. J. O'Byrne's No. 1 Ball, 330 ft. from S and W lines of Tract 3, Santas Flores grant.
Derrick.

Pearson et al's (Grimes et al) No. 1 Fitzsimmons, 300 ft. from S line, 150 ft. from E line of Sur. 291.
Sand 4,369-76 ft.; oil odor; no test; standing 4,552 ft.

Santa Clara Oil Co.'s No. 1 Wood-Welder, 330 ft. from NE cor. of NW¼ of Sur. 385.
Rigging up.

Texla Oil Co.'s (Johnson Bros.) No. 1 Hubbard, 990 ft. out of SW cor. of Sur. 84.
Drlg. 2,100 ft.

EDWARDS COUNTY

Harry Adams' No. 1 Holman, 1,650 ft. N line, 330 ft. from E line, Sec. 23, C.C.S. D.&R.G.N.G. Sur.
S.D. 602 ft.

FAYETTE COUNTY

Clark et al's No. 1 Becker, 750 ft. NW l'ne, 1,300 ft. SW line of 143.74-ac. trac' in A. E. Baker League.
Location.

Ross Fenton's No. 1 Kasper (263-ac.), 2,-000 ft from NE line, 1,380 ft. from SW line, of Thos. Green Sur. No. 28.
Checking titles.

FRIO COUNTY

Amerada Pet. Corp.'s No. 1 Davies, 1,320 ft. from NW line, 330 ft. from NE line of B. L. Crouch Sur.
T.D. 3,921 ft.; cleaning out; flowing at rate of 8 bbls. per hr.

W. T. Shoemaker's No. 1 M. Roche, 150 ft. SW cor. of Carl Wenzel Sur. No. 139.
No report.

GONZALES COUNTY

Southwestern Synd., Ltd.'s No. 1 W. S. Atkinson, 2,054 ft. from N line, 1,034 ft. from E line of 185-ac. tract in S. Y. Reams Sur. No. 51.
Drlg. hard chalk 5,535 ft.

GUADALUPE COUNTY

C. W. DeFreest's No. 1 Henry Beck, 502 vrs. from NW line, 150 vrs. from N line, Malpaz Sur.
Plugged and abnd. 510 ft.

A. D. Locke's No. 1 Lowman, 210 ft. from SE and SW lines of 2,500-ac. tract in C. Campbell Sur.
T.D. 1,810 ft.; changing to rotary to whipstock 1,275 ft. to get post tools lost in hole.

Mineral Oil Corp. of Texas' No. 1 Allen Phillips, 162 ft. from N line, 900 ft. from E line of tract, Cortinos Sur.
Rigging up.

J. S. Suttle's No. 2 Baenziger, S of Seguin. Old well; R.U. to W.O.

Suttle et al's No. 1 Baenziger, 700 ft. from S line, 500 ft. from E line of 125-ac. tract, Monsola Sur.
C.O. 2,153 ft.; to treat with acid.

Seidemann et al's No. 2 Seidemann, 400 ft. from NW line, 360 ft. from NE line of 147.5-ac. tract, Esnaurrizer Sur.
Drlg. 2,723 ft.

L. E. Trout's No. 1 McKee, 650 ft. from W line, 150 ft. from N line of tract, Green DeWitt Sur.
Fishing 3,100 ft.

HIDALGO COUNTY

D. & D. Oil Co.'s (Clay, Spencer & Hood) No. 1 Brooks & Showers, 330 ft. N and E lines of Lot 4, Blk. 12, Por. 79-80.
Dry and abnd. 6,002 ft.

Downey & Morton's No. 1 Daskom, 450 ft. from E line, 55 ft. from S line of Blk. 34, Por. 45.
T.D. 4,110 ft.; preparing to test sand 4,102-10 ft.

E. H. East's No. 1 Carter, 330 ft. from E line, 900 ft. from N line of Blk. 19, East Retama Subd., Tule grant.
1,600 ft.; no report.

Nutex Oil Co.'s (Hankamer & Camp) No. 1 F. Rapp, 330 ft. from E line, 990 ft. from S line of 511-ac. tract, Laguna Seca Lge.
Drlg. 4,490 ft.

E. A. Showers' No. 1 Brocks & Showers, 660 ft. from N and E lines of Lot 11, Blk. 18, Porcion 79.
Dry and abnd. 5,813 ft.

E. L. Smith's No. 1 Salinas, 548 ft. from N line, 1,001 ft. from W line, Share 10, Porcion 41.
Drlg. 2,900 ft.

Union Sulphur Co.'s No. 3 American Rio Grande Land & Irrig. Co., 400 ft. from S line, 600 ft. from E line of Lot 2,082, Blk. 88, 200 ft. W of No. 2.
Recmtd. csg.; run, tubing; T.D. 7,948 ft.

JIM HOGG COUNTY

French Oil Co.'s No. 1 Pena, 660 ft. from E line on lines of Blk. 41-42, Share 2, Sur. 574.
Abnd. 2,617 ft.

Miller & Pippin's No. 1 Yeager, 527 ft. S line, 150 ft. E line of Blk. 6, Sur. 30.
Drlg. 2,965 ft. (depth corrected).

A. Edmiston's (Southwestern Dev. Synd.) (formerly John D. Norwood) No. 1 C. W. Hellen, 330 ft. N and W lines, NW¼ NW¼ Sur. 48.
S.D. 1,600 ft.

JIM WELLS COUNTY

Joe Lundin's No. 1 T. C. Hewitt, SE cor. Sec. 51, McKinney & Williams Sur.
Rigged up and S.D.

Maer & Shira's No. 1 Schaeffer, 1,320 ft. E of NW cor. center of Blk. 15, of subdivision of ranch.
Drlg. 1,500 ft.

KARNES COUNTY

Henderson & Harvey's No. 1 Jauer, 330 ft. SE of SE line of Jauer 39-acre tract and 33 ft. SW of SW line of James O'Neal Sur. and in A. Borsheimer Sur., near line of Wm. Dixon Sur.
Drlg. Pettus, dry 1,810 ft.

H. A. Pagenkopf's No. 1 T. J. McAda, 330 ft. from NE and NW lines of Tract C, Martinez Sur.
Drlg. 4,010 ft.

R. G. Tonkin's No. 2 Henke, 1,650 ft. from S and E line of tract.
Location (making arrangements for derrick).

KERR COUNTY

Meteor Oil Co.'s (Edminton & Walker) No. 1 Whitworth, 1,160 ft. from S line and 1,-333 ft. from E line of Sec. 1,439, of the H.E.&W.T. Sur.
S.D. 950 ft.

Jeff Love and Eastland Oil Co.'s No. 5-E Jeff Love, 1,500 ft. SE of No. 1 and 1,588 ft. from SE cor. and 300 ft. from N line of Sec. 1,591.
Drlg. 5,070 ft.

KLEBERG COUNTY

Parr & Ponder's No. 1 Sam Michalk et al, 5 miles SE Kingsville.
No report.

LASALLE COUNTY

C. W. Benk's No. 1 Feliz, 1,300 ft. from S line, 300 ft. from W line of Sur. 47.
S.D. 1,815 ft.

S. H. Killingsworth's No. 1 Yeager, 100 ft. from W line, 300 ft. from N line, Sec. 94, Blk. 5, Lot 10.
Drlg. 595 ft.

LEE COUNTY

Jas. E. Pederson's No. 1 Turner, 1,860 ft. from N line, 150 ft. from E line of tract, David Hudson Sur.
T.D. 6,560 ft.; P.B. to 6,150 ft.; preparing to perforate csg.

Stowe & Schariach's No. 1 Otto.
T.D. 1,700 ft.; standing; moving in new boiler to deepen to Edwards lime.

LIVE OAK COUNTY

Baugh & McMillan's No. 1 Walton & Campbell, 1,500 ft. NE line and SE line of D. R. Fant Sur.
S.D. 3,214 ft.

Henderson Coquat's No. 1 Central Co., 310 ft. from S and W lines, Sec. 12, Blk. 43, Simon Subd.
Drlg. 1,385 ft.

Henderson Coquat's No. 1 Reagan, E of Nueces River and S of Oakville.
Moving in material.

Henderson Coquat's (Luling O. & G. Co.) No. 1 Rex, 330 ft. from SE and SW lines of 629-ac. tract, C of SW¼ of G.H.&H. Sur., Abst. 197, 3 miles S of Mileska.
Drlg. 1,729 ft.

Neversuch Oil Co.'s No. 1 H. H. Ueckert, 330 ft. from W line, 330 ft. from S line of 320-ac. tract, Blk. 121, Wm. Hatton Sur.
Tested salt wtr. 1,849 ft.

L. D. Ormsby's No. 2 Etta Terrell, 1,400 ft. from NW line, 200 ft. from NE line of tract, E. Jurdin Sur.
S.D. 1,520 ft.

J. O. Whittington's No. 1 Little, 1,320 ft NE of S cor. of M. M. Shipp Sur., 330 ft N of S line.
T.D. 5,758 ft.; Pettus dry; to perforate csg. at 4,200 ft.

McMULLEN COUNTY

Camp Drlg. Co.'s No. 1 Lark, 150 ft. from N and W lines of 407-acre tract, Scrugham Sur.
Abnd. loc.

Chas. A. Hall's No. 1 B. C. Claunch, 368 ft. from W line, 160 ft. from E line of 25-ac. tract, Michael Haley Sur.
Location.

Howeth & Swiger's No. 1 Rhodes, near C 990 ft. from N and W lines of Sec. 22, M. F. Lowe Sur.
Drlg. 2,350 ft.

Points et al's No. 1 Fahler, 2,000 ft. from S line, 2,500 ft. from W line of 1,000-ac tract. Pittuck Sur.
Temp. abnd. 703 ft.

MEDINA COUNTY

John Lind's No. 1 Jungman, 2,050 ft. from N line, 550 ft. from W line, J. Degat Sur.
Fishing 1,500 ft.

Scoggins & Sanders' No. 1 L. W. Burrell 150 ft. from E line, 1,750 ft. from N line of M. E. Gage Sur. 395.
S.D. 1,880 ft.

W. T. Shoemaker's No. 1 Noonan, 765 ft. W of SE cor. of tract 52½ ft. S and 220 ft. E of McClure's No. 1 Noonan, Sur. 52.
Drlg. 310 ft.

MILAM COUNTY

H. V. Pedersen's No. 1 Sandow (formerly C. F. Drake et al's No. 1 Standard Coal Co.) 970 ft. SW line, 1,760 ft. SE line of G. L. Johnson Sur.
Temp. abnd. 1,575 ft.

Second Natl. Bank's No. 2 Ward, 700 ft. from SE line, 2,598 ft. from SW line, L. Taylor Sur.
Abnd. 1,300 ft.

REAL COUNTY

H. J. Heartwell et al's No. 2 L. J. Maby, 250 varas from NW line, 775 varas from SW line of A.B.&M. Sur. No. 175.
Drlg. 3,000 ft.

SAN PATRICIO COUNTY

Masterson et al's (Tom Graham) No. 1 Wursbach, 330 ft. from W line, 4,350 ft. from S line of C. C. Hornsby Sur.
Coring for sand 5,340 ft.

Plymouth Oil Co.'s No. 1-C Welder, 10 mi. NE Sinton, 2,700 ft. from S line (river), 200 ft. from W line of tract.
Drlg. plug 5,508 ft.; sand 1½ ft.; tested 450 ft. of oil.

STARR COUNTY

Armstrong, Emanuel & Adams' No. 1 S.C. C.C., 330 ft. from S and E lines of Blk. 57, Porcion 88-89.
Reset packer to shut out wtr. 3,740 ft.

C. R. Borah's No. 1 A. Guerra, San Jose grant, 330 ft. from N and 150 ft. from W lines of Sec. 6 (NE part of county).
Coring 2,870 ft.

John H. Clopton's No. 1 Roos, 13,155 ft. N of Highway 4, along E line of Por. 93, 3,300 ft. N, 80 deg. 45 min. W.
Dry and abnd. 4,317 ft.

John H. Clopton's No. 1 Dioncia Lopez de Tijerina, Blk. 4, Tract C-14, Porcion 80.
No report.

Crawford et al's No. 1 Hicks et al, 187 ft. from NW line, 318 ft. from NE line of Blk. 6, Pedernal grant.
S.D. 1,615 ft.

Geo. Lacy's No. 1 Abney, 330 ft. from W line, Porcion 99; ½ mile W of Vernon's No. 1.
Abnd. 3,042 ft.

Conroe Drlg. Co.'s No. 1 Guerra, 330 ft. from NE and SE lines of Blk. 35, J. N. Crawford Subd., Por. 56, Jurisdiction of Mier.
T.D. 2,370 ft.; drlg. 1,040 ft.; sidetracked hole at 900 ft.

Hiram Reed's No. 1 Black Bros., Tract A-28, Porcion 80, Blk. 4.
Drlg. 1,355 ft.

Dale Sneed's No. 1 Y. and V. Guerra, 330 ft. W line of Por. 68, 330 ft. S line of 1,000-ac. block of N end of Por. 92, in Por. 68.
Standing 330 ft.

Sunray Oil Co.'s No. 1 Lopez, 2,600 ft. from N line, 880 ft. from E line, Porcion 75.
Drlg. 745 ft.

TRAVIS COUNTY

Anderson's No. 1 A. D. Beham.
T.D. 510 ft.; no report.

D. Prewitt's No. 1 Ed Peterson, 150 ft. from SE and SW lines of tract, L. Kimbro Sur.
Rigging up; S.D.

C. A. Stubbs' No. 1 Julius Kerlin, 530 ft. SW line, 450 ft. NW line of 123-ac. tract in I. Lindsay Sur. No. 61.
Temp. abnd. 1,135 ft.

WEBB COUNTY

Frank E. McMillan's No. 1 Bruni, 330 ft. from S and E lines of SW¼ of SE¼ of Sur. 77.
Abnd. 3,628 ft.

Payne et al's No. 1 Hoggterp, 450 ft. from SE line, 300 ft. from NE line, Blk. 5, Sur. 1,110, W of Oilton.
S.D. 1,570 ft.

Arthur H. Wray's No. 1 Geo. Stuempke, Share 1, Brewster pasture, Galan grant.
700 ft.; no report.

WILLACY COUNTY

W. T. Daniel's No. 2 Armendias, Share 14, near Rio Hondo, 7,798 ft. from E and W lines of Share 14.
Drlg. 3,250 ft.

Kingwood Oil Co.'s No. 1 Santa Rosa, Inc., 160 ft. from E line, 637 ft. from S line of Sec. 20, Blk. 16, Share 44, San Juan de Carricitas grant.
Ready to spud.

WILLIAMSON COUNTY

Gault & Mimms' No. 1 H. V. Seggren, 1,000 ft. from W line, 300 ft. from S line of 450-ac. tract, Bevil Sur. No. 56.
S.D. 913 ft.

Goff et al's No. 1 Timmerman, Cartwright Sur.
S.D. 1,146 ft.

Hays et al's No. 1 Pfluger, 150 ft. from E line, 150 ft. from S line, White Sur.
Showing oil in Serpentine at 915 ft.

J. Morgan Russell's No. 1 Nelson, 1,150 ft. S line, 1,115 ft. E line of John L. Justice Sur. No. 2.
S.D. 894 ft.

WILSON COUNTY

Universal Oil Co.'s No. 1 Burney, 330 ft. NE and SE lines, Arocha Survey, edge of Floresville townsite.
Set surface csg. 200 ft.; W.O.C.

ZAPATA COUNTY

F. H. Crow et al's No. 1 Daniel Yzaguirre, 330 ft. out of SW cor. Share 1, Porcion 14-15-16, D. Yzaguirre tract.
Location for 3,500-ft. test.

Danvers & Harrison's No. 1 D. A. McAskill, 660 ft. SE and SW lines, Blk. 51, Edwards Subd., Borrego grant.
Set and cmtd. csg. 20 ft.

H. & M. Oil Co.'s (Virginia Hardee) No. 1 Slator, 514 ft. from SW line, 150 ft. from SE line of Blk. 65, Borrego grant.
Standing 22 ft.

Texas Royalty Investment Co.'s No. 1 N. J. Vela, 686 ft. from NE line, 300 ft. from NW line, Blk. 7, Por. 29.
2,265 ft.; no report.

Vollering & Arnold's No. 2 Bruni, 3,615 ft. from NE line, 5,500 ft. from NW line of Barrocito pasture, Borrego grant.
T.D. 363 ft.; dry and abnd.

Williams & Carlysle's No. 1 R. Hinnant, NE cor. of Blk. 27, Sur. 307.
Moving in material.

Southwest Texas Proven

Week Ending April 20

CAESER—BEE COUNTY

Caesar Oil Co.'s No. 3 R. E. Miller, 1,900 ft. from W line, 330 ft. from S line of F. Lewis Sur.
Had gas blowout at 1,100 ft.

Caesar Oil Co.'s No. 5 R. E. Miller.
Drlg. 3,700 ft.

Firm Oil Co.'s No. 2 Grissom, 1,750 ft. from W line, 150 ft. from N line, McEarly Sur.
Derrick.

El Toro's No. 2 Gardner.
Set csg. without making drill stem test on sand.

Tothen Oil Co.'s No. 1 Hudman, 150 ft. from N and E lines of lease in Chas. Baker Sur.
T.D. 3,117 ft.; to perforate at 3,075-90 ft.

Swiger et al's No. 3 Gardner.
Drlg. below surface csg.; coring.

DIRKS—BEE COUNTY

Dirks Bros.' (Conservative Oil Co.) No. 1 Harris, 330 ft. S of N line, 330 ft. W of E line of 30-ac. tract, J. L. Dugat Sur.
Derrick.

RAY POOL—BEE COUNTY

Leslie McKay, trustee's No. 1 Phil L. Campbell, 700 ft. from N line, 150 ft. from E line of W. B. Blanchard Sur.
Rigging up.

TULETA—BEE COUNTY

Interallied Oil Co.'s No. 1 Nix, center of Blk. 6 of W½ of Sec. 20.
Coring 3,967 ft.

Edwin M. Jones' No. 7 D. E. Robinson, 660 ft. W of No. 6, 330 ft. from N line of SW¼ of Sec. 5, J. M. Uranga grant.
Set csg. 3,944 ft.

Edwin M. Jones' No. 16 Robinson, one location N of No. 13, Sec. 5.
Set csg. 3,966 ft.

Edwin M. Jones' No. 1 Unsicker, 330 ft. from S and E lines of Sec. 6.
Rigging up.

Heyser Heard & Walton's No. 2 Perez, C of Blk. 16, of SW¼ of Sec. 8.
Drlg. 1,500 ft.

Mills Bennett Prod. Co.'s No. 1 Basinger, 330 ft. from N and W lines of NE ¼ of NW¼ of Sec. 7, J. M. Uranga grant.
Drlg. 2,410 ft.

Southwest Exploration Co.'s No. 1 Heyden & Bruckham, C of farm tract, 330 ft. from N and W lines of Sec. 30, Uranga grant.
Rigging up.

Tuleta Oil Co.'s No. 8 Skinner & Harris, NW cor. W½ NW¼ Sec. 10.
Comp. but not gauged 3,952 ft.

Wrightsman Oil Co.'s No. 1 Kimball, 1,300 ft. from NW line, 1,500 ft. from NE line, S. Winship Sur.
No report.

VON ORMY—BEXAR COUNTY

Trawalter & Umburn's No. 2 Wentz, 150 ft. from S line, 700 ft. from E line of tract in John Simpson Sur.
S.D. 425 ft.

GOVERNMENT WELLS POOL—DUVAL COUNTY

Central Producers' No. 4 Wendt, 990 ft. from E line, 330 ft. from N line, Sur. 43.
Rigging up.

Gov. Wells Oil Co.'s No. 15 State, 330 ft. from N and E lines of SW¼ of SE¼ of Sur. 48.
T.D. 2,314 ft.; I.P. 60 bbls. per day.

Magnolia Pet. Co.'s No. 42 D.C.R.C., 600 ft. N of No. 24, 2,312.7 ft. from N line, 330 ft. from E line, Sec. 208, J. Poitevent Sur.
Derrick.

Magnolia Pet. Co.'s No. 1 C. W. Hahl, 330 ft. from N and E lines of Sur. 67.
T.D. 2,945 ft.; P.B. 2,816 ft.; standing.

Magnolia Pet. Co.'s No. 3 Hahl-Rogers, 660 ft. S of No. 2, 330 ft. from W line of 80-ac. tract, Sec. 61, J. Poitevent Sur.
T.D. 2,307 ft.; I.P. 100 bbls. per day on pump.

Magnolia Pet. Co.'s No. 5 Ruiz, 660 ft. E of No. 4, 330 ft. from N line of C.&M.R.R. Sur.
T.D. 2,471 ft.; I.P. 30 bbls. per day.

Magnolia Pet. Co.'s No. 14 J. O. Wilson, 660 ft. S of No. 9, 330 ft. from W line of Sec. 134, G.B.&C.N.G. Sur.
Coring gas sand 2,365 ft.

Parr Oil Co.'s No. 3 Heller, 330 ft. from NE line of E½ of SW¼ of Sur. 44.
Drlg. 2,295 ft.

Reynosa Oil Co.'s No. 3 Lundell, 330 ft. from S and E lines of NE¼ NE¼ of Sur. 60. Spudded; (correction).

Russ Pet. Co.'s No. 1 Hahl, 330 ft. from N and E lines of SW¼ SE¼ Sur. 64.
Drlg. 500 ft.

Sun Oil Co.'s No. 7 Cuellar Motor Co., 701 ft. E of No. 3, 330 ft. from S line of Sec. 576, B.S.&F. Sur.
Location.

Sun Oil Co.'s No. 8 Cuellar Motor Co., 701 ft. E of No. 7, 330 ft. from S line of Sec. 576, B.S.&F. Sur.
Location.

HOFFMAN—DUVAL COUNTY

Conway & Buescher's No. 2 Hoffman, 330 ft. S, 325 ft. E of SW cor. of Sur. 120 in Sur. No. 116.
Drlg. 2,000 ft.

LOMA NOVA—DUVAL COUNTY

Claud Hamill's No. 1 Ruiz, 330 ft. from S and E lines of N 326 acres, Sur. 41.
Drlg. 2,755 ft.; no sand yet.

Humble O. & R. Co.'s No. 3 Ruiz, 330 ft. from W line, 2,735 ft. from S line of 640-ac. tract.
Coring 2,791 ft.

NORTH KOHLER—DUVAL COUNTY

G. G. Mortiner's No. 2-B Peters, 2,310 ft. from W line, 330 ft. from N line of SW¼ of Sur. 196.
Sand showing oil at 2,474-80 ft.

DARST CREEK—GUADALUPE COUNTY

Grayburg Oil Co.'s No. 14 McKean, 700 ft. from No. 13, Cottle Sur.
Resumed drilling 1,819 ft.

LUCAS—LIVE OAK COUNTY

Houston Oil Co.'s No. 32 Cartwright, 1,124 ft. N of No. 31, Trudo Sur.
Rigging up.

SAM FORDYCE—HIDALGO COUNTY

Cortes Oil Co.'s No. 1-B Smith, 133 ft. from N line, 164 ft. from W line of S 99 acres of Tract B-3, Porcion 41.
Ready to resume drlg. 2,740 ft.

Double D Oil Co. and Harrison's No. 1 Lula George, 150 ft. from S and W lines of SW 20 acres of Tract 13, Porcion 41.
T.D. 2,756 ft.; I.P. 5 bbls. per hour.

Gem Oil Co.'s No. 1-B (2) Seabury, 330 ft. from S line, 230 ft. from W line, Tract 256, Porcion 38.
Set csg.; W.O.C. 2,807 ft.

Roy Johnson's No. 1 Missouri Pacific Ry., S edge of right of way, 500 ft. from W line of Porcion 41.
Rigging up.

Newman et al's (Moran Corp.) No. 1 Guerra, 130 ft. from S and 330 ft. from W line of 7.5-ac. tract, in Tract 254, Por. 40.
T.D. 2,791 ft.; jetting after perforating.

Jack Porter's No. 1 Jackson, 150 ft. from N and E lines of N 10 acres, Tract 278, Porcion 40.
T.D. 2,761 ft.; I.P. 85 bbls. per day.

Reed et al's No. 2 Smith, 133 ft. from N line, 165 ft. from E line of S 10 acres of B-3, Porcion 41.
S. D. 2,794 ft.

Rogers Oil & Gas Co.'s No. 4 Guerra, SE 25-ac., Tract 254, Porcion 40.
Spudded.

Skelly Oil Co.'s No. 2 Seabury, 230 ft. from S and W lines of 24-ac. tract, Tract 256, Porcion 38.
Sand 2,801-08 ft.; cmtd. csg.; W.O.C.

Smith & Dayvault's No. 1 Seabury, 100 ft. from N line, 150 ft. from E line of 22.90-ac., Tract 256, Por. 38.
Set. csg. 2,915 ft.

Waite's (Scheafer & Mundy) No. 1 Tobasco, Ind. Dist., 25 ft. from N line, 210 ft. from E line of Tract 260, Por. 38.
W.O.C. 2,770 ft.

SANDIA—JIM WELLS COUNTY

Magnolia Pet. Co.'s No. 6 Seeligson, 660 ft. W. 330 ft. S of No. 3, Canales Sur. No. 30.
T.D. 3,796 ft.; preparing to test.

O. W. Killam's No. 5 W. D. Wade ranch, 1,285 ft. from S line, 1,640 ft. from E line, 1,250 ft. SE of No. 4, in 1,000-ac. tract, Blk. D, Lopez de Jean grant.
Moving in rig.

BURNEL—KARNES COUNTY

Luling O. & G. Co.'s No. 1 W. C. Boyce, 150 ft. from NW cor. of tract, J. Johnson Sur.
Derrick.

KINGSVILLE—KLEBERG COUNTY

Ray Clark's No. 1 House, Lot 5, Blk. 37, K.T.&I. Co. Sur.
No report.

Fidelity Exploration Synd.'s No. 1 Vivian Kivlin, Sec. 4, Blk. 39, K.T.&I. Sur. on Vivian Kivlin lease.
Derrick up.

JACOB POOL—McMULLEN COUNTY

Longhorn, tr.'s No. 4 Lark, 350 ft. from N line, 300 ft. from W line, Blk. 4 of the Scrugham Sur.
T.D. 1,035 ft.; I.P. 5 bbls. per day.

Loma Oil Co.'s No. 36-A Jacob, 330 ft. N of No. 30, 160 ft. from E line of 640 acres, W. H. Jacob Sur. No. 3.
Set surface csg.

Motes & Beddingfield's No. 4 Jacobs (Lark), 418 ft. from S and W lines of lease, Scrugham Sur.
Drlg. plugs 983 ft.

Motes & Beddingfield's No. 6 Lark, 304 ft. S of No. 3, Scrugham Sur.
Cmtd. csg. and W.O.C. 985 ft.

Jonas, Alex & Maise Weil, 330 ft. from N line, 500 ft. from E line of Share No. 1, McBride partition.
Location.

SINTON—SAN PATRICIO COUNTY

Humble O. & R. Co.'s No. 1-B Welder, 2,400 ft. from N and E lines of 300-ac. lease.
Drlg. 6,990 ft.

ANGELITA—SAN PATRICIO COUNTY

Plymouth Oil Co.'s No. 3-A Welder, 2,500 ft. SW of No. 2-A, J. F. Portillo Sur.
Preparing to drill plugs 5,437 ft.

LOS OLMOS—STARR COUNTY

H. L. Curry's No. 1 Bass, 835 ft. E line, 2,522 ft. N line of Sur. 8, Por. 75-76-77.
Standing 1,595 ft.

Ed Linberg's No. 6 Bass, 1,350 ft. from W line, 150 ft. from N line of S½ of NW¼ of Share 6, Porcion 75.
S.D. 50 ft.

BARBACOAS—STARR COUNTY

R. G. Hall's No. 1 Doyno et al, 150 ft. from N line near center of Blk. C-31, Tract 21, Porcion 41.
Drlg. 1,125 ft.

Merren Bond et al's No. 4 S.C.C.C., 330 ft. from N and E lines of S 20 acres of Blk. 24, of the Jeffries Lambeth Subd., Por. 80.
Plugged back to perforate.

PLACETAS—STARR COUNTY

Hughston Oil Co., Inc.'s No. 1 Ben D. Wood, 701.6 ft. from S line, 162 ft. from W line of 1,000-ac. tract, Porcion 34.
Rigging up.

RIO GRANDE CITY—STARR COUNTY

R. M. Mitchell's No. 1 Salinas, 188 ft. from N line, 800 ft. from W line, Blk. 2, Share 39, Por. 80.
Dry and abnd. 1,620 ft.

Sioux Oil Co.'s No. 6 Goodrich, 150 ft. from S and W lines, Blk. 13, Tract 5, Por. 81.
Set csg.; W.O.C. 1,364 ft.

SAXET—NUECES COUNTY

J. K. Cutton's No. 3 Sagarin, 330 ft. from S and E lines of tract, Form Lot No. 1, C.E.P.I.&M. Sur.
Drlg. 4,003 ft.

Texon Oil & Royalty Co.'s No. 1 Buckbelts, 600 ft. from S line, 695 ft. from E line of J. Ward Sur.
No report.

KIMBRO—TRAVIS COUNTY

J. M. Hickey's No. 1 Altick Lind, 150 ft. from S line, 320 ft. from E line of 41.65-ac. tract in McHenry Windburn Sur.
Location.

BRUNI—WEBB COUNTY

Associated Oil Co.'s No. 3 A. M. Bruni, 660 ft. N of No. 2, 330 ft. from W line, 1,000-ac. tract, Blk. 7, M. Arispe grant.
Spudded.

American Liberty Oil Co.'s No. 16-A Bruni, 330 ft. from SW line, 1,302 ft. from SE line, Sur. 6, Arispe grant.
Drlg. 3,200 ft.

Highland Oil Co.'s No. 7 Bruni, 990 ft. from NW line, 330 ft. from NE line, Sur. 7.
W.O.C. 200 ft.

O. W. Killam's No. 32 Bruni, 260 ft. from SE line, 418 ft. from NE line of Blk. 28, Sur. 8.
Gas sand 3,418-25 ft.; standing 3,449 ft.

O. W. Killam's No. 35 Bruni, 915 ft. from SW line, 330 ft. from SE line, Sur. 6.
Derrick.

Peerless & Seeligson's No. 3 Bruni, 330 ft. SE line, 250 ft. SW line, Sur. 6.
Spudded.

WEST COLE POOL—WEBB COUNTY

Ross Barnhart's No. 1 de la Garza, 1,500 ft. from N line, 200 ft. from E line of Sur. 262.
T.D. 2,406 ft.; rebuilding derrick.

CarolinaTexas O. & G. Trust, Inc.'s No. 11 S. Benavides, 150 ft. from S line, 600 ft. from W line, Blk. 12, Sur. 682.
Drlg. 4,475 ft.

Cole Pet. Co.'s No. 92 Benavides, 330 ft. from N and E of E cor. of Callaghan Tract on Sur. 6.
T.D. 3,398 ft.; P.B. 2,300 ft.; W.O.C.

French Oil Corp.'s No. 2-B Benavides, 150 ft. S and W lines of SE¼ of SE¼ of Sur. 661.
Rigging up.

Magnolia Pet. Co.'s No. 3 Mag. Benavides, 200 ft. from N and E lines of Sur. 697.
Coring in sand 2,328 ft.

Magnolia Pet. Co.'s No. 3-S Benavides, 330 ft. from SW and NW lines of Blk. 7, O'Hern-Seacord Subd.
W.O.C. 2,816 ft.

Magnolia Pet. Co.'s No. 1 Valdez, 150 ft. from S and W lines of Sur. 754.
Abnd. 3,940 ft.

J. E. Thomas' No. 7 Gates, 910 ft. from N line, 225 ft. from E line, Sur. No. 62.
Spudded and S.D.

Tide Water Oil Co.'s No. 3 Bruni, 990 ft. from SW line, 330 ft. from NW line of 500-ac. tract, Sur. 7.
Coring in sand 3,400 ft.

BYERSVILLE—WILLIAMSON COUNTY

Coffield & Lanning's No. 3 Heap, 200 ft. from N line, 225 ft. from W line of tract in White Sur.
Location.

R. R. Ogden's No. 1 Matteck, 150 ft. N and W lines of 108.5-ac. tract in White Sur.
Location.

Taylor Ref. Co.'s No. 2-B Sladek, 1,500 ft. N of creek, 300 ft. from W of No. 1-B, White Sur.
696 ft.; no report.

ESCOBAS—ZAPATA COUNTY

Kleiner & Hill's No. 10 Jose Gutierrez, 660 ft. W of No. 9, 150 ft. from S line of 200-ac. tract, Share 4 of Fansler partition of Las Comitas grant.
T.D. 1,233 ft.; I.P. 15 bbls. per day.

Kleiner & Hill's No. 11 Guttierez, 600 ft. from NE line, 2,087 ft. from NW line, Fansler Subd., Sur. 4, Comitas grant.
Rigging up.

JENNINGS—ZAPATA COUNTY

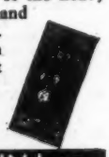
Texas Co.'s No. 66 J. D. Jennings, 960 ft. NW of No. 64, 241 ft. W of No. 65, Cerrito Blanco grant.
W.O.C. 1,220 ft.

CURTIN CENTRIFUGES

• NEW • IMPROVED MODELS •

For Testing Petroleum A. P. I. and A. S. T. M. Standards

Designed to meet all requirements of *A.S.T.M. Standard Method D96-30* and *A.P.I. Code No. 25*, these centrifuges are of the heavy duty type, simple in design, require no special care, and will give continuous service over a long period of time. The gear ratio and the throw of the crank have been designed to produce the required speed with the least effort consistent with good mechanical construction.



● A descriptive folder with specifications and prices of our complete line of centrifuges and tubes sent on request.

MANUFACTURED BY

No. 3480 W. H. CURTIN & COMPANY, INC.
HOUSTON, TEXAS

OIL WELL COMPLETION AND OPERATION

By H. C. George

Consulting Engineer with the United States Bureau of Mines; Director, School of Petroleum Engineering, University of Oklahoma

7½ by 11; 234 pages; 52 illustrations

Deals with equipment and methods used in completing oil wells and in lifting oil to the surface. Describes ordinary production practice. Presents means of detecting and correcting production troubles. The book includes discussion of "cavey formations," floating sand, casing leaks, crooked hole, variations in tubing size and depths, paraffin or waxy residues, emulsions, corrosion and repressuring, etc.

CONTENTS

Character of Oil Sands and Production Relations; Factors Affecting Methods of Completion and Operation; Casing Methods; Oil Sand Porosity, Texture, and Type in Relation to Recovery; Relation of Shooting to Recovery; Shooting Equipment; Water in Oil Sands and Its Relation to Recovery; Natural Gas and Hydrostatic Pressure as a Factor; Physical and Chemical Properties of Crude Oil in Relation to Recovery; Flowing Wells; Agitating Wells; Swabbing Wells; Bailing Wells; Pumping Wells; Oil-Field Emulsions; Paraffin and Other Residues in Oil Wells; Cleaning Out Producing Wells; Fishing Tools Used in Producing Wells; Oil Well Rejuvenation.

Price, $3.00 postpaid

Send order with check to the Book Department of

THE OIL AND GAS JOURNAL

Tulsa, Oklahoma

T-I-W
• CHRISTIAN
• FULL-HOLE
• APPLEMAN
BITS
Manufactured
Sold
Rented
In the manufacture, *sale* and rental of fish-tail type drilling bits, Texas Iron Works is a dominant factor in the Gulf Coast. Principal types are Christian, Full-Hole and Appleman. Your every requirement can be met fully.
TEXAS IRON WORKS
HOUSTON • TEXAS

Ask the
NORVELL-WILDER MAN
about
KEROTEST VALVES and FITTINGS
Norvell-Wilder Supply Company

ALWAYS RENEW YOUR SUBSCRIPTION PROMPTLY

. . . BAKER CEMENT GUIDE SHOE

unless the string is exceptionally long, when they use a BAKER Cement FLOAT Shoe to assure maximum safety.

But regardless of the combination used, they know that when the cement is set, they can drill out the Baker Formula Concrete and Bakelite, without any difficulty, and that there will NEVER be ANY METAL left in the hole to impede future operations.

Among Gulf Coast Drilling Contractors

Edwards Drilling Co., which recently completed an 8,500-foot contract test on Charenton Dome, St. Mary's Parish, La., is moving rig to East Baton Rouge Parish, Louisiana, to drill a 7,000-foot wildcat on the Thistlewaite Lumber Co. acreage for the Woodley Petroleum Co. Edwards also is preparing to drill No. 2 Springer for the Moran Corp. in the Conroe Field. Same contractor will have several additional locations to announce in the next week.

L. W. Capps is nearing contract depth of 4,000 feet on a well in Austin County for the Arkansas Fuel Oil Corp.

T. A. Carlton, president of C. & C. Drilling Co., has joined the growing list of drilling contractors who own or control production of their own. Carlton has an interest in several wells producing in the Livingston Field, Polk County, but not until he completed, recently, No. 1 Watt for the T. A. Carlton Oil Co. on the west 20 acres of the Watt lease, A. Viesca Survey, which effected a one-half mile extension of the Livingston Field to the west, did he come into his own as an independent producer. Carlton has made locations for T. A. Carlton Oil Co.'s Nos. 2 and 3 Watt on the same acreage. He also is moving in to drill Gem Oil Co.'s No. 2 Watt, located 460 feet north of No. 1 Watt, and also is drilling below 3,700 feet on No. 7 Davis-Holmes for the Gem Oil Co. He also is moving in a rig to drill an 8,500-foot test for the Coastal Petroleum Corp. of New York on the Maco Stewart lease in Galveston County, near the Dickinson Field.

Near East Columbia, C. & C. Drilling Co. is drilling below 5,900 feet on No. 1 Griffith for C. E. Holt estate and C. & G. Drilling Co.

W. V. (Bill) Bowles has completed No. 2 B. E. Norvell for Bowles & Borsodi in the Manvel Field, and the well is good for 18 bbls. per hour on a quarter-inch choke. This is Bowles & Borsodi's third flush producer in the field. Bowles is also drilling a well for the Texas Co. in the same field.

Glenn H. McCarthy, Inc., drilling contractors, suffered a bunch of hard luck when Trans-State Oil Co. of Houston had a well being drilled in the Big Creek Lield, Fort Bend County, get away from them making approximately 8,000 bbls. of pipe line oil per day. McCarthy holds a lease on more than 150 acres immediately adjacent to the Trans-State well. McCarthy is coring on his No. 1 McCarthy, on the J. T. Bertrand 80-acre lease in the Conroe Field.

Jordan Drilling Co. is drilling Boone Brothers' No. 1-D Texas Long Leaf Lumber Co. in the Kittrell Field, Walker County, and is also drilling Boone Brothers & Woodley Petroleum Co.'s well in the W. F. Bland Survey, Kittrell Field, Houston County.

Cron & Gracey have four rigs running for the Shell Petroleum Corp. in the Iowa, La., Field; one rig for the same company in the Roanoke Field, Louisiana; one rig for the same company at Whitecastle, La.; one in East Texas for the Sinclair-Prairie Oil Co.; one in the Manvel Field, Brazoria County, for the Texas Co.; one in the Port Lavaca Field for the same company; and are rigging up on a location for the Repollo Oil Co. at Eunice, N. Mex.

Smith & McDannald have two rigs running in the Louise Field, Wharton County, for the Pure Oil Co.; four rigs running in the Boscoe, La., Field for the Superior Oil Producing Co.; one rig in the Roanoke, La., Field for the Shell Petroleum Corp., and one rig in the Cayuga Field for the Tide Water and Texas Seaboard Oil companies.

George Echols is moving rig to drill a well for the Sun Oil Co. on the Mantor & Briggs lease, Section 53, Starr County. Echols also has a rig running for the Sun Oil Co. in Jim Hogg County. He also has a location for the Shell Petroleum Corp. near Shepherd, Tex., in the Trinity River bottoms. In Bee County, on a well for the Humble Oil & Refining Co., Echols has backed off 900 feet of stuck drill pipe, and made two successful outside cuts, leaving the top of the pipe at 2,300 feet. Casing with rotary shoe on bottom has been run to cut the pipe loose from the caving which has stuck it. Echols is also drilling below 4,265 feet on a well for the Felmont Oil Co. near Beeville. He is also drilling below 2,440 feet on No. 1 Fite & Nichols for the Commonwealth Oil & Gas Co. in the Manvel Field.

Charles B. Gholson, member of Gholson Drilling Co., is moving a rig to location in the Joseph Lindley Survey, Montgomery County, to drill No. 1 Aaron Parks to either oil, gas or salt water in the Cockfield formation. Gholson Drilling Co. drilled two wells on this block in 1933, coring a small section of pay sand in each well at or near 3,816 feet. Present well will be drilled in the southeast corner of the Aaron Parks 88-acre tract, located west of the original Crawford well, drilled by Gholson and Stanolind Oil & Gas Co.

Cron & Gracey have one rig running for the Shell Petroleum Corp. at Whitecastle, La.; four rigs running for the same company in the Iowa Field, Louisiana; one rig running for the same company at Roanoke, Louisiana; has just finished a well for the Texas Co. at Manvel, and has new contract to drill for the Texas Co. in the Port Lavaca Field.

A. D. CORGEY

A. D. (Doug.) Corgey, one of the Gulf Coast's most aggressive drilling contractors, started looking after tools for the Galena Signal Oil Co. in 1919. Experience gained throughout the Gulf Coast led him in 1930 to become associated with Frank W. Jones, the company being known as the J. & C. Drilling Co. In East Texas, and in Conroe during the boom in that field, the company was extremely active, keeping its rigs busy constantly in the service of both major and independent operators. Following the Conroe boom, the company concentrated its efforts in Southwest Texas, drilling many wells in that area. Recently, Corgey sold his interest in the J. & C. Drilling to Frank W. Jones, and started in business under his own name. He recently completed a well in the Greta Field for the Standard Oil Co. of Kansas.

There are many operators who use the

BAKER Cement FLOAT COLLAR to land their casing safely; also to stop the cementing plug one or more joints above the bottom to retain the cement tailings in the last joint and to assure full strength mixture of the cement which passes thru the shoe.

. . . on the bottom of the string they always use a . . .

MANHATTAN
PACKING
BELTING
HOSE
convenient for you in our complete stocks.
MURRAY-BROOKS HDWE. CO., LTD.
LAKE CHARLES, LA.
Oil Well Supplies
Branches at:
HOUMA - LEEVILLE - SCOTT

SPECIFY. . . .
McEvoy
IMPROVED WIRELESS WELL STRAINER and PREFORMED WIRE STRAINER
J.H. McEVOY & CO.
TEXAS WICHITA FALLS
HOUSTON, TEXAS

BREWSTER

Ring Type BRADEN HEAD

Perfected by BREWSTER. Simple, efficient, highly economical. Simply a solid cast ring with 2" outlet. Has guide and packing groove on under side where it sets down on top collar of surface casing. Has packing guide on top to receive collar of suspended casing. A big saving—a real improvement. Price and details on request.

The BREWSTER Co., Inc.
Phone 3181 Shreveport, La.
LONGVIEW - HOUSTON - LAKE CHARLES

Deep Producing Record for Gulf Coast Fields Made in Dickinson Field, Galveston County

By F. L. SINGLETON
Gulf Coast Bureau, The Oil and Gas Journal

HOUSTON, Tex., Apr. 22.—The establishment of a deep producing record for the Gulf Coast, as well as the State of Texas, was marked up at the Dickinson Field, Galveston County, when Humble Oil & Refining Co.'s No. 1 Danielson, southeast of production in the John Sellers Survey, was completed at a total depth of 9,140 feet for an initial production of 31 bbls. per hour flowing through a one-fourth inch choke, with tubing pressure 1,250 pounds and casing pressure 1,850 pounds.

One of the interesting features of this achievement is that the well is producing from a plugged back depth. It was originally drilled to 9,360 feet and was plugged back after the operators had made a 22-minute drill stem test from 9,230-9,360 feet, and recovered 63 thribbles of salt water with a one-quarter inch choke on top and bottom. Seven-inch casing had been cemented at 9,100 feet, and after the plug had been drilled the following screen setting was made from the bottom up: 1 foot 2 inch back pressure valve on bottom of 61 feet 9 inches of 5-inch O.D. .010 gauge screen, 121 feet 11 inches of 5-inch blank liner sealed with a 5 foot 8 inch packer to the bottom of the casing at 9,100 feet. Two and one-half inch tubing was swung at 9,137 feet. Another interesting feature was that the well did not have to be swabbed. It was brought in and started cleaning itself after being washed with water a few hours. Gravity of the oil is 35.9.

The well is producing from the Frio sand, and although it was completed at 9,140 feet it had encountered several sands showing oil and gas at higher levels. It had its first oil sand at 7,649 feet, one at 8,043 feet and topped the sand from which it is producing at 9,109 feet. This is the fourth deep producer to be completed in the field and it extends production over a mile southeast. The company's No. 1 Jones and No. 1-B Stewart are producing oil from 8,039 and 8,024 feet, respectively. Pure Oil Co.'s No. 1 Sheler, a distillate producer, is producing from 8,037 feet.

Prior to the completion of the Danielson test, the deepest production developed to date on the Gulf Coast has been at the Bosco Field, Acadia and St. Landry Parishes, where Superior Oil Producing Co. has six wells producing below 8,700 feet. The deepest producing record for the State is held at the Big Lake Field, Reagan County, where a few wells are producing below 8,900 feet.

Approximately 400 feet southwest of No. 1-B Maco Stewart, west of the Danielson test, Humble Oil & Refining Co.'s No. 1 Schaper in the W. K. Wilson Survey has been abandoned at 9,234 feet. An electrical coring test was made of the hole and the operators plugged back to 8,455 feet and while reaming at 6,985 feet the drill stem was stuck at 6,985 feet. This was shot off at 6,000 feet, leaving 19 joints of drill stem, drill collar and bit in the hole. The company's No. 3-A Maco Stewart, 1,400 feet due east of the company's No. 1-B Stewart, is coring in shale below 8,069 feet and is checking favorably. It topped the Frio at 7,974 feet and cored sand showing oil from 8,010-20 feet, and sandy shale showing oil from 8,038-48 feet.

Victoria County

A 2-mile southwest extension to the Keeran Field, Victoria County, was recorded by the completion of L. A. Gillespie and others' No. 1 Henderson and Pickering in the W. M. Rupley Survey, which drilled the plug the first part of the week and was completed at a total depth of 6,019 feet for an initial production of 20 bbls. per hour through a three-sixteenth inch choke, with casing pressure 1,800 pounds and tubing pressure 2,300 pounds. The oil is of 36.4 gravity, and on a 25-hour gauge ending April 19 it flowed 341 bbls. through a three-six teenth inch choke with casing pressure 2,300 pounds and tubing pressure 1,700 pounds. While the producing wells in the Keeran Field are producing at approximately 5,500 feet, it is the general opinion that the test is producing from the same formation, which is the Frio, and is not a new field but an extension to the Keeran Field.

Acreage around the extension test is divided among several independent and major companies, consequently considerable drilling will no doubt get under way within a short while. The acreage on which the test is located was formerly held by the Gulf Production Co. and was farmed out to Gillespie and others. The operators of the well have made two locations, being carried as L. A. Gillespie and Superior Oil & Gas Co.'s No. 1 R. W. Brandi and No. 1 John Janis, both being offsets to the well and located in the W. M. Rupley Survey.

Fort Bend County

On the southwest flank of the Big Creek Dome, Fort Bend County, Trans-State Oil Co.'s No. 2 Ahlers in the Michael Young Survey attracted considerable interest to that field when it blew out while testing at a total depth of 2,685 feet, and started making an estimated 8,000 bbls. of 37.1 gravity oil per day. The well was out of control for about two days before it was finally capped. Miocene sand was topped at 2,660 feet, and with 7-inch casing cemented at 2,636 feet the operators were washing the well when the blowout occurred. Many estimates have been made on the well's production, the highest reasonable figure being 15,000 bbls., with the estimates being based on the amount of oil that was pumped out of the Big Creek River, which runs close to the well site. It is understood that the Gulf Pipe Line Co. picked up between 250 and 400 bbls. per hour from the creek and pumped 3,000 bbls. in the tanks within 13 hours.

This is the largest well to be completed in the field, and was a big surprise to the operators, as the well is surrounded by small wells which are on the pump. The test is located 85 feet north of Gulf Stream, Inc.'s No. 1 Ahlers, which was completed for an initial production of 104 bbls. per day from a total depth of 2,657 feet. It is the opinion of many that production is coming from a new sand which has been passed up by other nearby wells. While some of the wells have been completed for rather large wells, production soon declines and it is only a short while before they are put on the beam.

Hastings

Another important extension has been made at the Hastings Field, northeastern Brazoria County, by Stanolind Oil & Gas Co.'s No. 1 B. W. Wooster, which was completed at a total depth of 6,082 feet for an initial production of 23 bbls. per hour flowing through a one-quarter inch choke, with tubing pressure 850 pounds and casing pressure 500 pounds. On the last 24-hour gauge ending April 18, it made 141 bbls. through a one-eighth inch choke, with tubing pressure 725 pounds

STRAIGHTER HOLE
FASTER REAMING
with
SIEVERS REAMERS

The shearing action of the three "barrel" shaped cutters, which are set at an angle, cut the walls of the hole cleanly and smoothly. This action keeps the hole free of any tight spots and allows closer tolerances between the hole and casing.

The use of the Sievers Reamer, assures increased drilling speed; better core recovery; decreased wear on drilling equipment; and lowered operating costs with greater safety.

Exclusive Gulf Coast and Mid-Continent Distributor.

WILSON SUPPLY CO.
OIL AND GAS WELL SUPPLIES

1412 Maury St., Houston, Texas

BRANCHES: Barbers Hill, Kilgore, Gretn, Gladewater and Tomball, Texas; Lake Charles and Shreveport, Louisiana.

Wildcat Operations on Gulf Coast

Week Ending April 20

RACCOON BEND—AUSTIN COUNTY

Humble O. & R. Co.'s No. 3-X Diemar, 1,458 ft. from NW line, 357 ft. from SW line of Wm. Harvey Sur.
Drlg. shale 4,185 ft.; 10¼-in. csg. 1,141 ft.

Humble O. & R. Co.'s No. 3-A Machemehl, 1,105 ft. along SE line from SW cor. and 216 ft. at R/A to SE line, Wm. Smeathers Sur.
T.D. 4,147 ft.; I.P. 55 bbls. on ¼-in. choke.

Humble O. & R. Co.'s No. 7-X Ollie Wilson, 933 ft. SE from No. 6-X, 250 ft. from NE line, Wm. Harvey Sur.
Cmtd. csg.; T.D. 4,182 ft.

Humble O. & R. Co.'s No. 14-X Woodley, 354 ft. W from No. 8, 418 ft. from easterly NE line, 375 ft. from most easterly N cor. of lease.
T.D. 4,152 ft.; 7-in. csg. 4,115 ft.; prepare to install gas lift.

DANBURY—BRAZORIA COUNTY

Shell Pet. Corp.'s No. 7 Blakely-Winston, 63 deg. 11 min. E, 5,540 ft. N, 26 deg. 49 min. W, 200 ft. from SW cor. of Blakely-Winston 560-ac. tract, H.T.&B. Sur. Abst.

Shell Pet. Corp.'s No. 3 Haury, 800 ft. SE of No. 2 in line with No. 2 and No. 1 Blakely-Winston, H.&T.B. Sur. No. 13.
Made est. 25,000,000 to 50,000,000 ft. gas daily; T.D. 7,168 ft.

DAMON MOUND—BRAZORIA COUNTY

Robert J. Cummins' No. 1 R. T. Mukahy heirs, 300 ft. SW line and 300 ft. from SE line of 100-ac. lease, A. Darst Creek Sur.
Drlg. 160 ft.

Esco's No. 1-D Wisdom, 25 ft. from S and W lines of Blk. D, Lot 5, A. Darst Sur.
T.D. 1,509 ft.; prepare to pump.

Intercoastal Oil Co.'s No. 13 Wisdom, 150 ft. from NW line and 10 ft. from SW line of Lot "D," Blk. No. 51.
Spudded.

HASTINGS—BRAZORIA COUNTY

Stanolind O. & G. Co.'s No. 1 Grote, 460 ft. N and W of SE cor. of 71-ac. lease, A.C. H.&B. Sur.
Rig up.

Stanolind O. & G. Co.'s No. 1 Sneed, 495 ft. E along S line of Miller lease from SW cor. and 466 ft. S at R/A, A.C.H.&B. Sur. No. 2.
13⅜-inch csg. 1,322 ft.; drlg. shale 1,620 ft.

Stanolind O. & G. Co.'s No. 2 Sneed, 491.5 ft. E, and 1,590 ft. S from NW cor. of Gilbert Sneed 225-ac. lease, A.C.H.&B. Sur. No. 2.
Spudded.

Stanolind O. & G. Co.'s No. 2 J. W. Surface, 375 ft. S and 466 ft. W from easterly NE cor. of 75.9-ac. lease, A.C.H.&B. Sur. No. 2.
Spudded.

Stanolind O. & G. Co.'s No. 1 Wooten, 466 ft. S of N line, 466 ft. from SE line of 70-ac. tract, A.C.H.&B. Sur. No. 1.
T.D. 6,082 ft.; I.P. 22 bbls. per hour through ¼-in. choke; T.P. 850 lbs.; C.P. 500 lbs.

MANVEL—BRAZORIA COUNTY

Sam Balling et al's No. 1 Still, located in center of W 5 acres of Lot No. 28, H.T.&B. Sur. No. 33.
Rig up.

Harrison & Abercrombie's No. 1 Stevens et al, Center of W 5 acres, E of No. 4, A.C.H. &B. Sur. No. 91.
Rig up.

(Continued on Page 122)

and casing pressure 625 pounds. Seven-inch casing was cemented at 5,987 feet. Location is approximately 2,100 feet north of the discovery in the A.C.H.&B. Survey. The other wells which have been completed for producers are located about the same distance as the above well from the discovery, and situated east and west, leaving only the west side of the field to be proven. The discovery well which tested salt water last week at 6,154 feet is cutting and pulling 3-inch screen to cement back and recomplete.

Markham

On the west flank of the Markham Dome, Matagorda County, Superior Oil & Gas Co.'s No. 1 Hawk, located in the W. H. Gainer Survey which last week showed oil from 4,200-10 feet, made salt water when it was tested and is now shut down. Bottomed at 4,213 feet, with 7-inch casing cemented at 4,185 feet, it flowed salt water cut with oil and gas through a one-quarter inch choke, with tubing pressure 1,050 pounds and closed in casing pressure 650 pounds.

Brazoria County

Pure Oil Co. added more acreage to its Peach Point Prospect, Brazoria County, when the State of Texas awarded it the lease on the Clemens State farm consisting of 1,785.23 acres, located out of the S. F. Austin 7⅛ League, Abstract No. 59, which was offered for bids during the week. The acreage adjoins the company's holdings on the west and northwest, out of the north part of the State farms on what is known as the Lawwood Plantation.

The company's bid on the above mentioned acreage was $9,819.88 in cash, plus the first year's rental paid in advance, making a total cash consideration of $13,389.50. The company also agreed to pay $30 per acre additional bonus or a total of $53,557.50 out of one-eighth of five-sixths of the first oil produced, or out of one-eighth of seven-eighths of the first gas produced. In this same area it is reported that Jack Charecker and Jack Frazier are on a deal to drill a well on the C. S. Hamell lease on the Lucy B. Henry lands which adjoins Pure Oil Co. block on the southeast.

Wharton County

In the central part of Wharton County, Texas Co. has abandoned its No. 1 Pierce Estate at 6,546 feet in shale after an electrical coring test has been made of the hole. The company is moving the same rig to its No. 2 Pierce Estate, located 2,425 feet south, 31 degrees, 20 feet east, and 4,400 feet north, 58 degrees, 40 feet east, from the west corner of Pierce Estate Lands, in the I.&G.N. Survey No. 39, which is northwest of the dry hole.

Harris County

On the Ogburn Prospect, western Harris County, H. Herbert and J. T. Still are planning to start a test in Block No. 17 in the southeast corner of the J. C. Ogburn Survey. It is reported that Turnbull and Irwin will drill the test, and that Humble Oil & Refining Co., General Crude Oil Co. and the Skelly Oil Co. have offered bottom hole money for the test. This prospect has been the scene of considerable drilling within the past two years, but no production has been developed, although some of the tests have reported encouraging showings.

One of the largest purchases of proven deals to be announced on the Gulf Coast for some time was made by the Tide Water Oil Co., who purchased from the Alpha Petroleum Co. a total of 120 acres in the Conroe Field, Montgomery County, on which seven producing wells are located. The purchase included Alpha's 100-acre P. G. Krohn "A" lease with five wells and the company's 20-acre "B" lease with two wells, which gives the Tide Water Oil Co. an ownership of 2,771 acres and 125 producing wells. All of the above acreage is located on the west flank of the field in the S. B. Brown Survey.

South of the Dickinson Field, Galveston County, Gillock Petroleum Co. is reported to have made arrangements to drill a test located approximately half way between the interurban right of way and the C. K. Spoort and others' No. 1 Maco Stewart which was abandoned several months ago, and located in the W. K. Wilson Survey.

Cleveland

In the Cleveland Field, Liberty County, Gulf Production Co. is moving in material for its No. 9-C Kirby Lumber Co., located 1,967 feet north and 1,400 feet east from the northeast corner of the J. S. Eldridge Survey, but located in the John Pleasant Survey.

Charles B. Gohlson has derrick up for a wildcat test located on the Aaron Parks lease, located 250 feet from the south line and 200 feet from the east line of a 139-acre tract in the J. Lindley Survey.

Gillis

The Gillis Field, Calcasieu Parish, Louisiana, received its sixth producer during the week, and two other tests being drilled by Union Sulphur Co. have reached the sand and were preparing to cement casing. The completion was Texas Co.'s No. 1 Nickerson, Section 12-9s-8w, which was completed for an initial production of 480 bbls. per day through a one-quarter inch choke from oil sand cored from 6,742-56 feet, the total depth. The completion of the test brings the total output for the field close to 3,000 bbls. per day. Union Sulphur Co.'s No. 3 Barbe, Section 11-9s-8w, is bottomed at 6,756 feet, and has cemented 6⅝-inch casing at 6,748 feet. The other test, No. 1 Mayo-Reeves, located 650 feet northeast of the discovery, is bottomed in oil sand at 6,751 feet and is preparing to cement 6⅝-inch casing. The company's No. 2 Castle is temporarily abandoned at 7,305 feet.

In east Baton Rouge Parish, Superior Oil Producing Co. has made location for an interesting deep wildcat test to be carried as No. 1 Duplanter-Community, located 1,500 feet westerly along the north line from the northeast corner of the D. A. and E. A. Duplanter 1,307-acre tract, thence 330 feet south at right angles in Section 65-7s-1e. Contract for the test has been let to the Edwards Drilling Co. and the rig is being moved from the Church Point Prospect, which was abandoned last week.

Although no drilling obligations are required, H. H. Weinert and Donald Clark are reported to have assembled a block of approximately 3,500 acres in Calcasieu Parish. The acreage takes in all of Section 8, most of Section 10, the west half of Section 15, all of Sections 16, 17 and 20, the north half of Section 21 and the north half of Section 22, all being located in Township 9s-8w, the same township in which the Gillis Field is located. The Block extends to the English Bayou community and a half mile south of the Lake Charles & Northern Railway bridge across the Calcasieu River.

Another large well, the second to be completed on the Dome since it was proven productive the past year, was completed by Texas Co. at its No. 8 Four Isle, located on the Four Isle Dome, Terrebonne Parish. Bottomed in oil sand at 5,569 feet, it was completed for an initial production of 2,408 bbls. per day through a three-eighths inch choke. This is a much better well than the discovery well which was completed for an initial production of 2,000 bbls. per day.

George W. Strake's No. 1 Calcasieu National Bank, a deep wildcat test located 5 miles northeast of the Iowa Field, and 5 miles northwest of the Welsh Field, in Jefferson Davis Parish, has been abandoned at 8,148 feet after making considerable salt water on a drill stem test. It was originally drilled to 8,502 feet, but was plugged back, sidetracked and redrilled to its present depth.

Another producing sand has apparently been discovered for the Roanoke Field, Jefferson Davis Parish, by Shell Petroleum Corp.'s No. 3 Kratzer, which made a drill stem test at 7,597 feet and recovered 30 bbls. of 37.5 gravity oil and 60 feet of drilling mud. Casing will probably be set. If this sand proves productive it will be the shallowest producing horizon in the field. Other wells have been completed at 7,800, 7,900 and 8,600 feet.

Development Is Gaining in Lima Field; Central Ohio Has 15 Completions

By GEORGE A. WHITNEY
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Apr. 22.—There is a slight increase in development work in the old Lima Field, with Wyandot County leading. In Tymochtee Township, Murphy and others' No. 2 on the Hakes and Fox farm, Section 5, is a light gas well at from 1,439 to 1,519 feet. In Pitt Township, Wood and others' No. 5 Edward Orton farm, Section 22, is shut down at 1,100 feet. Bosse and others have a rig for No. 1 E. E. Kear farm, Section 16, Salem Township. Bert Sheldon has a rig for No. 2 on the Ora Bush farm, Section 31, Blanchard Township, Hardin County, and Simms Oil & Gas Co.'s No. 1 Margaret Beach farm, in Buck Township, same county, is drilling.

In Marion County, Claridon Oil Co.'s No. 1 H. C. Barnhardt farm, Section 11, Claridon Township, made a very light showing of oil at from 762 to 785 feet, and has been abandoned. In Wood County, L. Hillie's No. 1 on H. Linkey farm, Troy Township, is shut down at 1,287 feet. In Sandusky County, Montgomery and others' No. 2 on the H. F. Hetrick farm is shut down at 2,580 feet. In Seneca County, J. L. Barrett is drilling No. 1 T. N. Einsel farm, Section 1, Hopewell Township, and R. E. Greene's No. 3 T. C. and B. G. Schall farm, Section 30, Liberty Township.

CENTRAL OHIO

In the Central Ohio Field there were 15 completions, of which 4 were oil wells, with initial of 22 bbls., 5 gas wells and 6 dry.

In Medina County, L. A. McGrath's No. 3 on the McGrath farm, in Litchfield Township, was dry at 485 feet. In Medina Township, Ohio Fuel Gas Co.'s No. 1 Luella Walker farm, Lot 7, was a gas well. Miller and Latshaw are drilling No. 7 on the Carl H. Miller farm, Lot 62, and J. A. Price is drilling No. 1 on the Robert O. Bowman farm, Lot 66, same township. In Guilford Township, Ohio Fuel Gas Co. has a location for No. 1 on the H. Dell Rhorer farm, Lot 26. In Chatham Township, East Ohio Gas Co.'s No. 1 E. S. Culp farm, Lot 11, is dry at 3,135 feet, and Oko Oil & Gas Co.'s No. 36 on the T. W. Brinker farm, Lot 6, same township, produced 10 bbls. initial at 350 feet.

In Ashland County, Ohio Fuel Gas Co. is drilling No. 1-5,977 on the J. W. Mutchler farm, Section 3, Hanover Township.

In Lorain County, J. W. Cushing's No. 1 on the Hanshaw Chemical Lands, Section 6, Elyria Township, is a gas well at a depth of 2,308 feet. Schneider & Myles has a rig for No. 2 on the A. L. Mills farm, Section 6, Ridgeville Township.

In Wayne County, Robison and others are drilling on the Raymond A. Lake farm, Section 12, Clinton Township.

In Summitt County, Lyons and others are drilling No. 2 on the A. H. Cummins' farm, Section 6, Green Township.

Knox County

In Knox County, Ohio Fuel Gas Co.'s No. 1 William Kaylor farm, Section 9, Jefferson Township, was dry at 2,902 feet. Upham Gas Co. is drilling No. 1 on the Howard and James Fry farm, Section 21, Butler Township, and has a rig for No. 5 on the L. A. and J. M. Lower farm, Section 24, Union Township. In Pike Township, J. B. Reed has a rig up for No. 2 on the Clint McCoy farm, Section 6, Pike Township.

In Muskingum County, H. P. Muhlbach is drilling No. 1 William O. Burrier farm, Section 5, Licking Township.

In Athens County, Gross & Frebault are drilling No. 2 on the Alva C. Verity farm, Lot 30, Alexander Township. Ohio Fuel Gas Co. has a rig for No. 119 on the Sunday Creek Coal Co.'s land on Fractional Section 18, Dover Township.

In Belmont County, Barnesville Development Co.'s No. 2 on the Mary C. Thornburg farm, Section 33, Goshen Township, is dry as a water well at 1,746 feet.

In Tuscarawas County, John Marks' test on the John H. Hart farm, Section 22, Oxford Township, is a gas well at 1,191 feet. Columbia Carbon Co. is drilling No. 1 on the Urbano Dodro farm, on Lots 36 and 43, Goshen Township.

In Stark County, East Ohio Gas Co. is drilling No. 2 on the George Leidtherman farm, Section 11, Jackson Township, and No. 1 John C. Mayer farm, Section 16, Plain Township. White & Lyons are reporting at 4,000 feet on the Hattie Leaman farm, Section 26, Perry Township.

In Guernsey County, W. H. Larrick and others' No. 1 DeGolia farm, Lot 18, Wheeling Township, is reported at 3 bbls. at 3,660 feet. In Richland Township, L. Sebo and others' No. 1 J. H. Hayman farm, Lot 9, was dry at 1,404 feet, and Frank Lyons & Co.'s No. 1 on the Rich farm, Lot 14, same township, produced 5 bbls. initial at 1,345 feet.

In Gallia County, Huntington Township, Barton & Utsinger's No. 1 on the W. T. and Ella Miller farm, Section 24, was dry at 1,275 feet.

In Perry County, Ohio Fuel Gas Co. has a rig on the Albert Smith farm, Section 8, Reading Township.

In Licking County, Wehrle Gas Co.'s No. 2 on the Charles Flory farm, in Newark Township, is drilling. In Mary Ann Township, Settles Oil Co. abandoned No. 5 location on the Oran Evans farm, Section 18.

City Natural Gas Works is starting No. 3 on the F. A. Ruff farm, Section 31, Rush Creek Township, Fairfield County, and is drilling No. 1 on the Daniel Steiger farm, Section 1, Greenfield Township.

INDIANA

Few completions were reported from the Indiana area recently. In Washington County, A. B. Bement's test on the McCoy farm, NE NE Section 34, Brown Township, was dry at 1,052 feet. C. H. Parrott is drilling No. 1 on the Charles Honey farm, NW SW, Veale Township.

In Pike County, Midwest Development Corp. is drilling on the William Pyle farm, Section 31, Clay Township.

In Sullivan County, Dome Gas Co.'s No. 1 Tom Struck farm, NE SE Section 19, Curry Township, is a gas well at 337 feet. In Vigo County, J. E. Dent's No. 1 on the J. E. Dent farm, SW SW Section 9, Prairie Creek Township, was a gas well. Harry Hanson & Co. are drilling No. 2 Oliver M. Smith farm, NW SE Section 4, Harrison Township, Daviess County.

Amber Oil Producing Co. is drilling No. 17 F. E. Davis farm, NE NW Section 21, Penn Township, Jay County.

Spaulding & Fisher are drilling No. 1 Yarnell farm, NW NW Section 25, Martin County, and George E. Nelson and others are drilling No. 1 Ethel B. Burress farm, same section.

In Vanderburg County, J. S. Young, Jr., is drilling on the Frank E. Keck farm, NE SW Section 32, Perry Township.

In Newton County, Nelson Zumbaugh is drilling No. 1 Thomas R. Watkins, SE NE Section 22, Colfax Township.

In Wabash County, Warren K. Shoemaker is drilling No. 1 Harry M. Williams farm, NW NW Section 35, Largo Township.

In Spencer County, Santa Fe Oil Co. has a showing of both oil and gas in No. 3 on the Mary Berg farm, in Huff Township.

In Adams County, Hartford Oil & Gas Co. is drilling No. 3 Glendenning farm, Section 34, Harrison Township.

Eastern Production Totals Are Again Declining; Completions Fail to Offset Normal Drop

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Apr. 22.—The lower Eastern Fields continue dull and inactive with completions maintaining the usual level for the present season of the year. Production totals are again declining due to the very few new producers completed lately as new production generally offsets with flush production normal declines. This, however, fits in with present conditions as the refinery demand has not been heavy.

Completions totals for the week consisted of eight gas wells, four small producers with an initial production of only 13 bbls. and four dry holes. Some new locations are reported in West Virginia and southwest Pennsylvania.

SOUTHEAST OHIO

Southeast Ohio continued inactive with only one gas well, two producers and two dry holes. In Belmont County, Union Gasoline & Oil Corp. continued developing the small pool in Richland Township and completed No. 2 on the Nick Dyken farm in the SE Section 26. It was drilled to 1,776 feet, the Berea sand, and produced 5 bbls. the first day, natural.

In Medina County, E. R. Edson & Son Co. completed No. 56 on the Edward G. Miller farm, Tract 15, Lot 12, Chatham Township, in the Berea grit at 485 feet. It produced 5 bbls. the first day after shot.

In Monroe County, Robinson and Greene completed a test on the Kate Baker farm in the NW Section 16, Franklin Township, in the Salt sand, total depth 1,310 feet. It is a gas well with an initial of 125,000 feet a day. In the NE Section 22 of this township, George Robinson and others drilled on the George Robinson farm through the Berea grit to 1,853 feet. It was dry.

In Washington County, W. F. Greenlees and others drilled No. 24 on the George Montgomery farm, Lot 41, Salem Township, through the Keener sand to 1,104 feet. It was also dry.

SOUTHWEST PENNSYLVANIA

There was only one completion in southwest Pennsylvania. In West Bethlehem Township, Washington County, Furman Nuss & Co. completed a test on the Margaret Keys farm at a total depth of 3,400 feet as a gas well. The top of the Fifth sand extended from 3,170 to 3,210 feet. The Bayard sand was at 3,276-79 feet with a heavy flow of water showing at 3,277 feet. The Bayard Stray sand was at 3,307 feet and when struck had a volume of gas of 350,000 feet a day which declined to about 160,000 feet a day. The well will be shot.

In Greene County, H. E. Milliken is rigging up to drill deeper on the S. B. Smith farm in Jackson Township. In Perry Township, Carnegie Natural Gas Co. has reached 2,455 feet in deepening No. 11 on the Harvey Lemley farm. In Gilmore Township, Johnson and Eddy have resumed drilling the second test on the W. L. B. Roberts farm and have reached 1,910 feet. In Richhill Township, Lewis & Co. have started drilling on the Samuel Chess farm at a new location after losing the tools in the first location. It is now 200 feet deep.

In Washington Township, Greene County, Carnegie Natural Gas Co. is drilling deeper No. 1 on the Russell Johnson farm at 2,875 feet. In Cumberland Township, same county, near Carmichaels, this company is setting a machine to drill deeper No. 2 on the Hester Stephenson farm.

In East Findley Township, Washington County, Natural Gas Co. of West Virginia is deepening the test on the P. I. Ealy farm. Top of the Big Injun sand was at 2,058 feet with about 310,000 feet of gas showing at 2,062 feet which blew down to 200,000 feet. The tools are at 2,215 feet. On the T. C. Noble farm near East Findley, this company is drilling at 1,000 feet. The Pittsburgh Coal was at 760 feet.

In Morris Township, Washington County, Carnegie Natural Gas Co. is setting a machine to deepen No. 529 on the S. L. Harvey farm. In South Franklin Township, the test of Duquesne Gas Co. on the S. A. Dague farm is drilling at 1,650 feet. In Amwell Township, Union Gasoline & Oil Corp. has reached 2,635 feet on the J. C. McCoy farm.

In Fayette County, the test of William Snee and others on the Summit Hotel property in South Union Township, is shut down at about 800 feet underreaming to lower the casing. At this depth the Elizabeth sand was found to have considerable water.

WEST VIRGINIA

There were two small producers in West Virginia. In Roane County, on the waters of Mill Creek in Curtis district, Henderson Oil Co. completed a second test on the E. S. Ball farm in the Salt sand showing for 2 bbls. a day, natural. It is about 125 feet west of the test on the Zora Blaker farm.

In Pleasants County, M. J. Uhl and others completed a test on the Lafayette Cordell farm on Horse Neck Creek in Jefferson district in Horse Neck shallow sand. It will make a 1-bbl. pumper.

In Clay County, on the waters of Summers Fork of Laurel Creek in Henry district, E. R. Reed shot and cleaned out No. 1 on the Bethel M. E. Church lot and increased production from 1 to 6 bbls. a day.

Deep Sand Tests

The deepest well drilling in West Virginia is No. 52 of Godfrey L. Cabot, Inc., on the Arabella D. Huntington lease in Cabin Creek district, Kanawha County. The present depth is 5,850 feet with no report of gas or oil.

In Elk district, Kanawha County, Clyde Oil & Gas Co. is again shut down cementing the test on the F. W. Shinn farm at 4,696 feet close to the normal cave on top of the Onondaga limestone. Benedum & Trees are drilling on the Mary C. Wingfield farm at a depth of 3,794 feet. No additional locations have been made in this district. In Loudin district, Godfrey L. Cabot, Inc. has started drilling on the Edgewood Realty Co. lease. No work has been started at its location on the Kanawha Land Co. lease, nor in Malden district at its location on the Plus R. Levi farm at which material is on the ground.

Gas Wells

In Boone County, Owens Illinois Glass Co. completed No. 23 on the Peytonia Coal Land Co. lease in Sherman district in the Berea sand at a depth of 2,706 feet. It gauges about 306,000 feet a day, initial.

In Kanawha County, Lincoln Gas Co. completed No. 6 on the Fred J. Thabet farm in Elk district, 1 mile east of the Garland Anderson farm. It has an initial of about 350,000 feet a day.

In Lincoln County, W. C. Kingery and others, operating as Craddock Gas Co., completed a test on the Millard Pratt heirs farm in Sheridan district in the Berea sand at 1,545 feet. It is a gas well gauging 555,600 feet a day.

In Ritchie County, William Morris and others completed a test on the Nellie Snyder farm in Murphy district in the Squaw sand at a depth of 2,145 feet. It has an initial volume of 260,000 feet a day. In the same district, H. W. Colling completed a test on the Elijah McGill farm as a gas well at a depth of 2,145 feet, in the Injun sand.

In Roane County, on the waters of Peniel Run in Curtis district, Justine Cottle and others completed a test on the W. A. Davis farm in the Salt sand with 1,500,000 feet a day initial. It is about one-half mile west of the test on the Lizzie Moore heirs farm.

There were two dry holes in West Virginia. In Pleasants County, J. C. Hinds drilled a test on the J. N. Hinds farm in Jefferson district through the Cow Run sand to a depth of 938 feet. It was dry. In Tyler County, J. W. Kerns and Austin Smith drilled a test on the Ira T. Hill farm in Meade district through the Berea sand to a depth of 2,276 feet. It was also dry in all formations.

Drilling in West Virginia

In Boone County, Owens Illinois Glass Co. is building a rig for No. 21 on the Cassingham Coal Co. lease in Scott district. In this district this company is down 1,200 feet in the second test on the S. M. Wheeler heirs farm. In Washington district, it is rigging up on the H. C. Vanderline farm. Pond Fork Oil & Gas Co. has reached 520 feet on the Cole and Crane lease, No. 20. Boone County Coal Co. is drilling at 1,412 feet the second test on its property. In Sherman district, Pure Oil Co. is spudding in No. 73 on the Federal Coal Co. tract.

In Clay County, F. F. McIntosh is drilling at 1,746 feet the second test on the Peabody Coal Co. lease in Pleasant district. In Union district, United Fuel Gas Co. has passed the 1,600-foot level in No. 4,549 on the Samuel Samples farm.

In Cabell County, R. H. Adkins, trustee, is moving in tools on the Benjamin Bledsoe farm in McComas district. In this district, R. H. Adkins and others are drilling at 550 feet on the H. S. Fraley farm. J. S. Pridemore and others are down 1,492 feet on the H. S. and Bertha Nida farm. On the Edward Owens farm, Boyles and Gardner have shut down with a fishing job at 1,560 feet.

In Lincoln County, Kanawha Gas & Utilities Co. is building a road to the location on the R. R. Sloan farm in Sheridan district. In Logan County, Cumberland Petroleum Co. is down 1,100 feet in No. 10 on the Merrill Coal Co. tract, Chapmansville district. In Logan district, West Virginia Gas Co. is still fishing for tools at 2,200 feet in No. 38 on the Dingess Run Coal Co. lease.

In Marshall County, Samuel Morris and others are drilling on the Ambrose Ferris farm in Clay district and have reached 245 feet. In Mingo County, F. H. Yates and others remain shut down

(Continued on Page 115)

Preliminary Program for Tulsa Mid-Year American Petroleum Institute Meeting

Twenty-five papers, chiefly technical, are scheduled on the preliminary program of the American Petroleum Institute's fifth mid-year meeting May 14, 15, and 16, at the Mayo Hotel in Tulsa. Some 40 committee meetings, and regular sessions of the board of directors, also are listed.

The program calls chiefly for divisional sessions, with no general session scheduled. The Division of Marketing will hold no meetings, but several marketing committees will meet.

The program follows:

Wednesday, May 15

9:30 a.m., Division of Production, Crystal Ballroom, Drilling and Production Practice Program Sponsored by Central Committee on Drilling and Production Practice. Papers under consideration: Blowout Prevention; Direct-Drive Diesel Engines; Resistance to Mud Flow in Tool Joints; Disposal of Salt Water.

10 a.m., Division of Refining, Junior Ballroom, Refinery Session. Chemical Constitution of the Gasoline Fraction of Petroleum, Frederick D. Rossini, National Bureau of Standards. Fundamental Research on the Chemical Constitution of Lubricating Oil, Frederick D. Rossini, National Bureau of Standards. Determination of Monthly Gasoline-Production Allowables, Fred Van Covern, Planning and Coordination Committee. Laboratory Distilling Apparatus, W. W. Scheumann and J. F. Stewart, Empire Oil & Refining Co.

2 p.m., Division of Refining, Junior Ballroom, Refinery Session. Diesel-Fuel Specifications—Round Table Discussion. Oiliness in Motor Oil Practice, E. R. Barnard and D. P. Barnard, IV, Standard Oil Co. (Indiana). Polymer Gasoline From Cracked Gases, Gustav Egloff and V. N. Ipatieff, Universal Oil Products Co.

Thursday, May 16

9:30 a.m., Division of Production, Crystal Ballroom, Drilling and Production Practice Program Sponsored by Central Committee. Electric Logging. Selective Wetting of Reservoir Rock and Its Relation to Oil Production. Equipment Used in Securing and Examining Subsurface Samples. Subsurface Pressure Instruments.

10 a.m., Division of Refining, Junior Ballroom, Progress in Solvent Refining. Recent Developments in Solvent Extraction With Chlorex, D. B. Williams, Carbon & Carbide Chemical Corp. Performance and Flexibility of Duo-Sol Process, Malcolm Tuttle, Max B. Miller Co. Refining of Lubricating Oils With Furfural, G. R. Bryant, R. E. Manley, and B. Y. McCarty, Texas Co. Analytical Solvent Fractionation, U. B. Bray, D. R. Merrill, and R. C. Pollock, Union Oil Co. of California. Some Effects of Solvent Fractionation on Service Characteristics of Motor Oils, D. R. Merrill, C. C. Moore, Jr., and U. B. Bray, Union Oil Co. of California.

2 p.m., Division of Production, Crystal Ballroom, Drilling and Production Practice Program Sponsored by Central Committee. Papers being considered: Mid-Continent Production Methods; Frozen Drill Pipe and Cement-Casing Bonds; Directional Drilling; Oil-Well Casing; and Integral-Joint Drill Pipe. The entire day, Tuesday, May 14, is to be given to committee meetings.

Oklahoma Production Hits High Mark for Year; Altus District Reports Another Producer

By JAMES McINTYRE

Secretary Ickes, petroleum administrator, in establishing the daily allowable production for the month of May, increased the Oklahoma daily allowable 7,200 bbls. to a new figure of 500,200 bbls. At the same time, pools in the State were establishing a new high production record for the year, ending the week with a daily average of 537,125 bbls. This figure, as a matter of fact, is the highest rate of production for the State since July 11, 1934, when it was 551,060 bbls. daily.

Increases were recorded in the South Burbank, Crescent, Fitts, Fish and Polo and several of the Greater Seminole area pools. Oklahoma City Pool, Oklahoma's largest producing spot, dropped off from 179,550 bbls. to 176,325 bbls.

A summary of the week's field operations showed 43 new operations under way against 37 completions. Twenty-four tests were completed as oil wells having an aggregate first day's production of 59,114 bbls. Thirteen tests were completed as dry holes, five of which were wildcats.

Total operations in the State were approaching the 600 mark as the week ended with 594 under way.

NORTH AND NORTHWESTERN FIELDS

Major County

Indian Territory Illuminating Oil Co. and Continental Oil Co. were moving in material for their Major County wildcat venture, No. 1 Fairview, in the C E half SW SE Section 32-22-14w.

Garfield County

Magnolia Petroleum Co. had farmed out its Mullen lease on the west edge of the old Garber Field to Frank C. Mullen who had rig on the ground in the NW SE SE Section 11-22-4w for well No. 1-A.

Kay County

Texas Co.'s No. 1 Curtis, NW NE Section 23-28-3, offsetting the Skinner sand discovery of the Bay Oil Co. to the south, had logged dry Skinner sand at 2,987 feet, encountered a hole full of water in the Bartlesville sand at 3,080 feet, and at 3,134 feet, total depth, 4 feet in the Chat, was bailing and cleaning out. This is the second Skinner sand failure for this pool as Bay Oil Co.'s No. 1 Curtis, NE NW Section 23-28-3, also found dry Skinner. Bartlesville sand showed a small amount of oil at 3,058 feet, as did the Chat at 3,132 feet. The latter well was shut down at 3,138 feet in Mississippi topped at 3,136 feet, after a test of the Bartlesville sand showed nothing.

Grant County

Helmerich & Payne Drilling Co.'s No. 1 Crouse, southwestern Grant County, was shut down at 6,105 feet in lime for repairs.

Guthrie Wildcat

Sinclair Prairie Oil & Gas Co.'s No. 1 Koatsch, south of Guthrie in Logan County, in the SW cor. of Section 23-15-3w, Oklahoma's most closely watched wildcat test at the moment, was carried deeper after last week's report of salt water indications in the first Wilcox sand. Second Wilcox sand topped at 6,322 feet was cored and well saturated sandstone recovered, indicating the possibilities of some kind of a producer for this horizon. It was shut down for orders.

Noble County

Twin State Oil Co. had completed its No. 3 Devore, SW NE NW Section 27-22-2w, Polo Pool, in Noble County, in the first Wilcox sand topped at 4,878 feet, with total depth of 4,928 feet. It swabbed 84 bbls. of oil in four hours and was cutting its production more than 9 per cent.

Stanolind Oil & Gas Co. and others' No. 1 DeBord "A," NE SW Section 27-22-2w, Polo Pool, in Noble County, had logged top of the Mississippi lime at 4,720 feet, Chat at 4,750 feet, Viola at 4,789 feet, set 7-inch casing at 4,816 feet and was shut down at 4,819 feet waiting on cement to set.

Lucien Operations

Texas Co.'s No. 1 Snodgrass, 10-acre location in the SE SW NE Section 7-20-2w, Lucien Pool in Noble County, was drilling below 3,230 feet.

In the East Lucien Pool, Magnolia Petroleum Co. had shut down its No. 1 Vietz, C SW SW Section 27-20-2w, to let cement set around the 7-inch casing at 4,965 feet. Total depth was 4,970 feet in Viola lime which was topped at 4,945 feet.

Shell Petroleum Co.'s No. 1-A Tate, C NW NW Section 29-20-2w, west edge of Lucien Pool, was shut down at 5,415 feet. Top second Wilcox 5,209 feet, showed water at 5,270 and 5,336 feet.

The south extension well to the Lucien Pool, Stanolind Oil & Gas Co. and Amerada Petroleum Corp.'s No. 1 Fuller, C SE SW Section 34-20-2w, Noble County, logged base of the first Wilcox sand at 5,704 feet, had increase in production in dolomite at 5,079-81 feet, total depth, flowing 50 bbls. of oil per hour. A shot with 20 quarts from 5,079-81 feet stopped the flow of oil but it produced 267 bbls. in 24 hours when agitated with the swab.

Twin State Oil Co. had made location for its No. 2 Pfeiffer, C N half NE SW Section 33-20-2w, and Magnolia Petroleum Co. was building rig for its No. 1 Sharp in the C SW SW Section 34-20-2w, both being in the Lucien Pool of Noble County.

Oklahoma Production

Estimated production by pools in Oklahoma for the week ended April 20 and for the preceding week follows:

	Barrels	
	Apr. 20	Apr. 13
Allen	8,550	8,375
Asher-West Asher	1,175	1,300
Burbank	8,750	9,000
South Burbank	11,000	10,500
Balance Osage	27,500	27,500
Blackwell	4,750	4,750
Bristow-Slick	9,500	9,250
Chandler	5,600	5,500
Crescent	7,250	5,175
Cromwell	4,300	4,250
Cushing-Shamrock	12,750	13,500
Duncan district	4,000	4,000
Edmond	1,850	1,750
Fish	12,500	7,225
Fitts	14,175	12,825
Gray	2,050	2,100
Graham	3,800	3,800
Healdton	9,000	8,750
Hewitt	4,750	4,750
Holdenville	1,800	1,850
Keokuk	2,675	3,350
Konawa	2,050	2,450
Lucien	10,175	10,100
Marshall-Lovell	900	900
Oklahoma City	176,325	179,550
Papoose	1,275	1,250
Polo	2,950	900
Sasakwa and townsite	2,300	2,725
Sholem Alechem	4,000	4,000
Seminole Field:		
Bowlegs	12,400	12,300
Carr City	6,500	6,900
Earlsboro	9,300	10,125
East Earlsboro	9,550	9,825
South Earlsboro	1,225	1,250
Little River	13,825	14,175
East Little River	950	900
Maud	1,450	1,450
Mission	3,300	3,475
Seminole	11,750	11,550
East Seminole	1,250	1,250
Searight	3,900	3,750
Total Seminole	75,900	76,950
St. Louis-Pearson	26,550	25,525
Tatums	5,000	5,000
Tonkawa-Garber-Thomas	6,000	6,000
Wewoka	3,500	3,600
Yale-Jennings	4,800	4,750
Other pools	57,675	57,650
Total Oklahoma	537,125	529,350

Logan County

In the Langston Pool of Logan County, Helmerich-Payne Drilling Co. and Gypsy Oil Co.'s No. 1 Moss, SE SW Section 11-17-1w, was drilling below 5,050 feet.

Houghton Royalty Co. had made location in the Langston townsite of Logan County for its No. 1 in the SW SE Section 13-17-1w, southeast of the Langston Pool about 1½ miles.

Carter Oil Co. and Gypsy Oil Co., in their No. 3 E. Herren, C NW NE Section 28-17-4w, Crescent Pool in Logan County, had logged first Wilcox sand at 6,195 feet, recovering 2 feet of sandy lime and 1½ feet of sand showing oil in a core taken from 6,192-99 feet.

Mid-Continent Petroleum Corp.'s No. 1 Campbell, C SE NE Section 33-17-4w, Crescent Pool in Logan County, was drilling at 6,203 feet in second Wilcox with no increase in production. At 6,198 feet it flowed at the rate of 108 bbls. per hour.

Osage County

Two oil wells, two dry holes and seven new operations summarizes the change in the status of Osage County activity for the week just ended.

In the Naval Reserve Pool, Lewis Production Co. and Continental Oil Co.'s No. 6, NE SE SE Section 9-24-7, topped the Bartlesville sand at 2,477 feet, got first oil show at 2,489 feet and stopped at 2,548 feet, total depth. It was plugged

Wildcat Operations in Oklahoma

Week Ending April 20

NORTHERN OKLAHOMA

BECKHAM COUNTY

Fred Coogan et al's No. 1 Shelton, SW cor. Sec. 23-10-25w.
S.D. 3,608 ft.

BLAINE COUNTY

Earl Ingrahm et al's No. 1 Masters, SW NW NW Sec. 27-16-11w.
T.D. 1,205 ft.; C.O.

CADDO COUNTY

H. W. Lee et al's No. 1 Horton, NE NE NE Sec. 9-6-13w.
Rig.

H. W. Lee et al's No. 1 Stacey Ferrell, SW NE NE Sec. 3-6-13w; (2,000-ft. test).
Drlg. shale 2,208 ft.

Denver Prod. & Ref. Co.'s No. 1 Noe, NW SW SW Sec. 34-10-10w.
T.D. 11,230 ft.; C.O. to 10,000 ft.; flowing by heads 100 bbls. oil every other day.

CANADIAN COUNTY

R. Carl Larkin's No. 1 Brobine, NW NW NE Sec. 33-13-5w.
Drlg. 4,270 ft.

CLEVELAND COUNTY

Sinclair Prairie et al's No. 1 Franklin, SE NW SE Sec. 21-10-2w.
Checkerboard 5,520 ft.; first Oolitic 5,840
Drlg. 6,338 ft.

COAL COUNTY

J. D. Petty Oil Co.'s No. 1 McMillan, SW NW NE Sec. 16-1s-8.
S.D. 1,368 ft.

H. F. Potts' No. 1 Nichols, C SW SW NW Sec. 32-2-9.
McLish lime 2,406 ft.; sand 2,621-27 ft.; sulphur wtr.; drlg. 2,635 ft.

GARVIN COUNTY

Anderson & Kerr et al's No. 1 Rodke, NW NW SE Sec. 17-4-1w.
Location.

Charles Carter and W. S. Key, Inc.'s No. 1 Wood, C NW SW SE Sec. 5-4-3e.
Set surface pipe.

National Prod. Co.'s No. 1 Littrell, NE NE NE Sec. 31-3-3w.
6⅝-in. csg 1,244 ft.; T.D. 1,528 ft.; abnd.

George L. Pace's No. 1 Smith, SW NE Sec. 35-1-1.
Drlg. 1,995 ft.

GRANT COUNTY

Helmerich & Payne's No. 1 Crouse, C NE SW Sec. 29-25-8w.
T.D. 6,105 ft., lime; S.D.

GREER COUNTY

M. C. Ent and R. C. Camp's No. 1 Simington, SW SE Sec. 29-5-21w.
R.U. and S.D.

Gled Oil Co.'s No. 1 Luker, SE cor. Sec. 6-4-21w.
Machine.

Morgan et al's No. 1 Carder, C SW SE Sec. 19-4-22w.
T.D. 1,012 ft.; S.D. for fuel.

HUGHES COUNTY

Amerada Pet. Corp.'s No. 1-A Adams, NE NE SW Sec. 31-9-9.
First Wilcox 4,371 ft.; second Wilcox 4,-307-17 ft.; T.D.; H.F.W. from both sands; P.B. to 4,095 ft.; good show oil; acidized and flowed 170 bbls. gross oil in 40 min.

Dandridge & Crane's No. 1 Mead, NW NW NE Sec. 17-5-9.
S.D. 1,335 ft.

Freeman et al's No. 1 Kite, NW NW NE Sec. 8-6-10.
C.O. at 685 ft.

KAY COUNTY

Harris & Haun's No. 1 Schuessler, C NW SW Sec. 3-28-2.
Mississippi lime 3,614 ft.; drlg. 3,710 ft.

Bay Oil Co.'s No. 1 Holden, SW SW SE Sec. 14-28-3.
5-in. 2,945 ft.; drlg. plugs.

J. T. Lindsay's No. 1 Waggoner, NW NW NE Sec. 3-27-1.
Location.

KIOWA COUNTY

Henson & Patton's No. 1 Beeler, NE cor. Sec. 11-6-15w.
T.D. 517 ft., lime; S.D.

Henson & Patton's No. 2 Beeler, NW NE NE Sec. 11-6-15w.
Drlg. 283 ft.

Rajah Oil Co.'s No. 3 Stone, C SE NE Sec. 34-7-17w.
R.U. machine.

LINCOLN COUNTY

Carter Oil Co. et al's No. 1 McFarland C-38, SW SW NE Sec. 18-13-4.
Oswego 4,095 ft.; Prue sand 4,116-20 ft.; drlg. 4,190 ft.

Chester L. Carlock's No. 1 Young, C N½ NW NW Sec. 23-15-5.
R.U. rotary.

Mid-Continent Pet. Corp. et al's No. 1 Nunn, SE SE NW Sec. 25-15-1.
Location.

Slick-Urschel, Inc.'s No. 1 Miller, NW NW SE Sec. 25-15-3.
Tonkawa sand 3,995 ft.; drlg. 4,870 ft.

Stanolind et al's No. 1 Campbell, SW NW Sec. 3-14-3.
Skinner 4,319 ft.; coring 4,420 ft.

Stanolind O. & G. Co. and Amerada Pet. Corp.'s No. 1 Cavanaugh, SE NE Sec. 21-15-5.
13-in. csg. at 143 ft.; W.O.C.S.

LOGAN COUNTY

Anderson-Kerr et al's No. 1 Renfrow, NE cor. Sec. 35-16-4w.
Drlg. 5,020 ft.

Sinclair Prairie and Slick-Urschel's No. 1 Koatsch, SW cor. Sec. 23-15-3w.
First Wilcox 6,218-50 ft.; show oil and gas; T.D. 6,254 ft.; set 7-in. csg. 6,102 ft.; Tested salt wtr.; drlg. 6,297 ft.

Sinclair Prairie Oil Co. et al's No. 1 School Land, SE cor. Sec. 36-17-1w.
Simpson dense 5,255 ft.; flowed 298 bbls. in 24 hrs.; top sand at5,285-90 ft., T.D.; H.F.W.; P.B. to 5,266 ft.; flowed 63 bbls. oil and 5 bbls. wtr. in one 10-min. flow; acidized 1,000 gallons and flowed 425 bbls. oil.

Slick-Urschel et al's No. 1 Pennington, C SW NE Sec. 10-16-1w.
Simpson dolomite 5,534 ft.; Wilcox 5,581 ft.; no show; lost circulation at 5,587 ft.

J. C. Schaffer et al's No. 1 Hammond, SE SE SW Sec. 10-15-4w.
Oswego 5,960 ft.; drlg. 6,235 ft.

McCLAIN COUNTY

Anderson & Kerr's No. 1 Newburn, NW SW NE Sec. 24-5-3.
Drlg. 2,025 ft.

Anderson & Kerr et al's No. 1 Newburn, NW SW NE Sec. 24-5-3.
Viola 2,655 ft.; Simpson dense 2,835 ft.; drlg. 2,940 ft.

NOBLE COUNTY

Marathon Oil Co.'s No. 1 Gilbert, NE cor. Sec. 24-22-2.
Wilcox sand 4,449 ft.; T.D. 4,480 ft.; flowed 1,792 bbls. in 7 days; may deepen.

Stanolind-Amerada et al's No. 1 Fuller, C SE SW Sec. 34-20-2w.
First Wilcox 5,029-74 ft.; Dolomite 5,074-5,100 ft.; T.D.; flow 787 bbls. in 24 hrs.; shot 20 qts. 5,079-81 ft and swabbed and flowed 267 bbls.

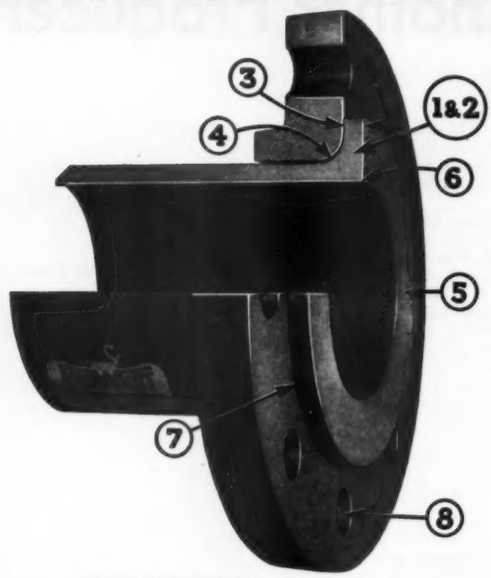
OKFUSKEE COUNTY

Amerada Pet. Corp.'s No. 1 Jaynes, NW NW SW Sec. 20-10-10.
Hunton 3,690 ft.; 10,000,000 ft. of gas at 3,704 ft.; Wilcox sand 3,932 ft.; T.D. 4,-

(Continued on Page 121)

MIDWEST

VAN STONE WELDING NIPPLES



HAVE MANY ADVANTAGES

1 LAP IS FORGED—by a special Midwest process that simultaneously upsets the pipe and forms the lap. Tests have proved the superiority of this process.

2 STRESS RELIEVED—The metal is worked at a forging heat and then normalized to assure a uniform, close-grained structure.

3 HEAVY LAP—Thickness of finished lap (after machining front and back) is always at least equal to pipe wall thickness.

4 LARGE RADIUS FILLET—Assures more metal in the critical area of lap—where maximum total bending and shearing stresses occur. Advantages 3 and 4 are important factors in securing the greatest strength in the lap.

5 PHONOGRAPHIC FINISH—of lap face holds the gasket more securely.

6 SQUARE CORNER (instead of a round corner) adds to lap strength but also eliminates pockets for accumulation of condensate and sediment that promote corrosion.

7 UNIFORM FLANGE BEARING—Back face of lap is carefully machined to assure the uniform flange bearing necessary to a satisfactory joint.

8 TIME SAVED—in both welding and erection because bolt holes need not be carefully lined up before welding.

See the distributor near you for further information regarding M. V. S. W. N. and other Midwest Welding Fittings shown here.

MIDWEST

WELDING FITTINGS

IMPROVE PIPING DESIGN AND REDUCE COSTS

MIDWEST PIPING & SUPPLY COMPANY, Inc.

MAIN OFFICE—1450 South Second Street, St. Louis, Mo.

CHICAGO—20 N. Wacker Drive Bldg. • HOUSTON—1708 Second Nat. Bank Bldg. • TULSA—733 Mayo Bldg. • LOS ANGELES—520 Anderson St. • NEW YORK (Ballwood Div.)—30 Church Street

back to 2,545 feet and given a 90-quart shot of nitro from 2,500-45 feet, flowing 650 bbls. of oil first 24 hours on its completed gauge.

North of Wildhorse, Osage Lease Holding Co.'s No. 1, NE cor. Sec. 6-22-11, Osage County, pumped 140 bbls. of oil and the same amount of water in 24 hours from acidized lime logged at 1,165-80 feet, total depth.

Murray Ringold had abandoned his No. 6, NW SW NE Section 25-21-8, Osage City Pool, in Osage County, getting dry shallow sand at 378-91 feet, total depth.

In the same pool, Barnsdall Oil Co. failed to make a commercial well of the shallow sand at 332-40 feet in its No. 26, NW SW NE Section 30-21-9, Osage County, and it was deepened to the Layton sand logged from 1,104 feet to 1,158 feet, total depth, which produced water. It was dry and abandoned.

Osage County first reports for the past week follow: Norbla Oil Co.'s No. 1, NW SW SW Section 4-20-10, location; Johnson Oil & Refining Co.'s No. 12, NE NW SW SE Section 30-21-9, location; Phillips Petroleum Co.'s No. 1, SW cor. Section 19-22-8, location; Kewanee Oil & Gas Co.'s No. 12, CNL SE NE NE NE Section 5-22-11, formerly based at 1,727 feet, had been plugged back to 1,181 feet in the Big lime where it is to be acidized; R. O. Branstetter's No. 2, CSL NW SW SE Section 28-22-11, location; Continental Oil Co.'s No. 5, NW NE SE Section 21-24-7, building rig; same company's No. 12, SW SE NE Section 21-24-7, moving in rig.

South Burbank

George Manahan & Gypsy Oil Co. and others' No. 6, SW NE Section 3-25-6, South Burbank Pool in Osage County, was shot in the Burbank sand, 2,777-2,823 feet, with 150 quarts of nitro, and it produced 125 bbls. in eight hours. Total depth was 2,826 feet and it was being swabbed and cleaned out.

Gessman Pool

Magnolia Petroleum Co.'s No. 1 Wilson, SW NE SE Section 33-14-4, Gessman Pool in Lincoln County, was completed in the Cleveland sand drilled from 3,056-3,073 feet, total depth. It was shot with 10 quarts of nitro from 3,056-69 feet and flowed 101 bbls. of oil first 24 hours.

Seven-inch casing had been set at 3,020 feet in the Texas Co.'s No. 3 Gessman, NE SE NE Section 33-14-4, Gessman Pool in Lincoln County, and the hole was being cleaned out. Cleveland sand had been logged from 3,055-3,062 feet, total depth.

Failing to get production in the Cleveland sand, Texas Co. had ventured on to the Bartlesville sand in its No. 1 Hughes, NW NE Section 34-14-4, Gessman Pool, where water was encountered from 4,215 to 4,230 feet, total depth. It will probably be abandoned.

Lincoln County Wildcat

Stanolind Oil & Gas Co.'s first wildcat test for the year 1935, No. 1 Campbell, SW NW Section 3-14-3, located on a seismographed structure 1½ miles northwest of production in the West Chandler Pool of Lincoln County, had logged Oswego lime at 4,070 feet, Prue sand at 4,140 feet, Skinner sand at 4,319 feet, and it was drilling below 4,825 feet in shale.

CENTRAL OKLAHOMA

Canadian County Wildcat

Canadian County's one and only wildcat test, R. Carl Larkin's No. 1 Brobine, NW NE Section 33-13-5w, was reported drilling below 4,455 feet.

Oklahoma City

The Edmond Pool in Oklahoma County ended the week with five locations and six wells drilling. Amerada Petroleum Corp. and Stanolind Oil & Gas Co.'s No. 2 Suenram, NW NE NE Section 6-13-3w, topped Oread at 4,310 feet and was drilling ahead at 4,921 feet. All other wells in the pool were at depths above the No. 2 Suenram except the Gulf Petroleum Co. of Oklahoma's No. 1 Lindsay, NE SW NW of Section 6-13-3w, which has been shut down for several weeks around 6,700 feet.

Pure Oil Co. had started digging cellar in the SE SW Section 30-14-3w for No. 1 Malm, hoping to tie in with production between the H. E. Rapp producer in Section 19-14-3w and the Edmond Pool proper. The No. 1 Malm, if it produces, would extend the Edmond Pool one-half mile to the north.

Anderson and Kerr and others' No. 1 Linn, SW NW Section 17-14-2w, northeast of the Edmond Pool in Oklahoma County, was given up as a failure in the second Wilcox sand 6,344-73 feet, total depth, and it was abandoned.

Oklahoma City Pool

Proponents of the recently extended drilling zone for the Oklahoma City Field, comprising 1,200 acres, were given a jolt in the early part of the week when Judge Clarence Mills of the district court granted a temporary injunction placing a ban on drilling for oil in the zone. Later in the week a two-judge District Court at Oklahoma Ctiy was hearing application for a permanent injunction. At the time the injunction was granted there were 11 operations in the area, all of which were forced to shut down.

Travis Petroleum Co.'s No. 1 Lucas, in the NW NE SW Section 36-12-3w, Oklahoma City Pool, was completed for a light producer in the Simpson formation, averaging 96 bbls. of oil per day for the month of March, producing on the swab and making from 10 to 15 per cent water. Simpsón was topped at 6,400 feet and total depth was 6,617 feet.

Champlin Oil & Refining Co. has a rig up in the NE SW NW of Section 35-12-3w, for its No. 1 Latimer. Exact location is 1,020 feet north and 1,305 feet east of the SW corner NW quarter on Block 31, Oak Park Addition to Oklahoma City.

Okfuskee County

Vierson and others' No. 1 Walker was a rig up in the NW NE SW Section 27-13-10, and Devonian Oil Co.'s No. 1-B Hawkins, SW NE NE Section 3-11-11, was spudding. Both are new operations in Okfuskee County.

Creek County

F. O. Akin's No. 3 King, SE SW Section 35-18-8, Olive Pool in Creek County, was completed in the Jones sand, 1,543-71 feet, total depth, for 80 bbls. of oil daily.

L. B. Jackson's No. 3 Jackson, NE SE SE Section 35-18-8, Creek County, shot Jones sand, 1,546-82 feet, with 190 quarts of nitro, producing 90 bbls. first 24 hours. It was completed.

L. B. Jackson's No. 1 Grimes, C W half E half NE Section 18-18-10, Creek County, had sand 2,470-2,509 feet, total depth, which put 15 bbls. of oil in the tank in 24 hours after a 240-quart shot of nitro. It was completed.

First reports in Creek County for the week follow: Atlantic Oil Producing Co.'s No. 1 Harjo "D," SW NE Section 27-14-10, drilling at 335 feet; Nabob Oil Co. and Bay Oil Co.'s No. 2 Mike, NE SW NW Section 10-17-8, location; Harry E. Kork's No. 3 Livington, NW SW SE Section 36-17-9, spudding; Sinclair Prairie Oil & Gas Co.'s No. 1 Long, NW SW Section 9-18-7, deepening from 2,585 feet, set 6-inch pipe at 2,570 feet; Home Gas Co.'s No. 1 Givens, SW SE Section 27-18-7, location.

Okfuskee County

Minnehoma Oil Co.'s No. 1 Grayson, NE NW SE Section 31-11-11, Okfuskee County, completed for 4,000,000 feet of gas in Hunton lime at 3,630-70 feet, total depth, after acid treatment.

New operations in Okfuskee County were: Prince and Anderson's No. 3 Likorski, NE SE NE SW Section 23-11-11 (O.W.D.D.), old total depth 1,692 feet, Booch sand 2,060 feet, drilling below 2-080 feet.

Muskogee and Okmulgee County First Reports

J. R. Parks' No. 2 D. Woodway, NW SW Section 11-14-17, Muskogee County, was a machine on location.

Anderson & Kerr's No. 1-A Johnson,

SE cor. Section 5-12-12, Okmulgee County, was a location.

Elm Oil Co.'s No. 26 Hutchins, NE SE SW Section 13-14-14, was moving in machine.

F. D. Misener's No. 5 R. Caster, NE NW SE Section 10-15-14, Okmulgee County, was a location.

Okmulgee County

Dodge Brothers' No. 6 Rentie, NE SW SW Section 11-15-14, Okmulgee County, was dry and abandoned in sand at 1,496-1,501 feet, total depth, which had no showings of oil nor gas.

Greater Seminole Area

Carter Oil Co. and associates' No. 2 McKinnis, C W half SE SW Section 18-10-6, North Searight Pool in Seminole County, was completed in the Wilcox sand at 4,590-96 feet, total depth, swabbing 410 bbls. of oil in 24 hours.

Wood Oil Co.'s No. 1 Fred Henry, SW NW SW Section 28-9-6, one-quarter mile extensioner to the east of the West Seminole Pool in Seminole County, was completed. Wilcox sand logged at 4,100-22 feet, total depth, was shot with 20 quarts of nitro and the well swabbed 2,120 bbls. on its 48-hour potential gauge.

Amerada Petroleum Corp. had location staked for No. 10 Chase, SE NE SE Section 29-9-6, offsetting the Wood Oil Co.'s No. 1 Henry to the west, and Wood Oil Co. was digging cellar and pits for No. 1 Lincoln in the NW SE SW Section 28-9-6, one-quarter mile southeast of the No. 1 Henry.

Barnsdall Oil Co. had opened a Hunton lime spot about three-quarters of a mile southwest of the Carr City Pool in Seminole County, when its No. 1 Harris, NW SE Section 15-8-5, responded to acid treatment with 500 bbls. of oil in 48 hours. Hunton lime was from 3,982 to 3,994 feet, total depth.

In the Fish Pool in Seminole County, Winona Oil Co. and others had completed for 1,533 bbls. on six-hour potential test, their No. 4 Myers, NW SW NE Section 31-7-8, producing in Wilcox sand logged at 4,203 to 4,212 feet, total depth.

Four new locations were announced for the Fish Pool in Seminole County the past week. Blackwell Oil & Gas Co. and others' No. 4 Ferguson, SW NW SW Section 29-7-8, was a location. Champlin Oil & Refining Co. had location staked in the SE NW SE Section 30-7-8 for No. 8 "See." Magnolia Petroleum Co. had rig up for its No. 9 Reed, NW SE SE Section 30-7-8. Stanolind Oil & Gas Co.'s No. 3 Myers, SW NW NE Section 31-7-8, was a location.

In the Little River Pool in Seminole County, Pure Oil Co. had deepened its No. 4 Harjo, SE SW NE Section 11-7-6, to the second Wilcox sand stopping at 4,421 feet, 11 feet in the sand. It pumped 50 bbls. of oil and 290 bbls. of water in 24 hours and was completed.

The Grayson Pool in southwestern Seminole County was defined on the north when Arrow Drilling Co. and others' No. 1 School Land, SE cor. Section 11-6-5, failed to produce in the Hunton lime recorded from 3,633 to 3,658 feet, total depth. Although this test was not drilled to the Simpson dolomite, producing horizon in the Grayson Pool, it was running too low on the Hunton lime to expect production in the lower formation, and it was abandoned.

Mid-Continenot Petroleum Corp. had rig on the ground for its No. 2 Gassoway in the NE SE NE Section 14-6-5, Grayson Pool in Seminole County.

St. Louis Sector

Hunton lime at 3,756-4,037 feet failed to yield oil production and Newt Barrett and associates had plugged back from 4,042 feet, total depth, in their No. 1 Brandenburg, SW NE SE Section 3-7-4, St. Louis Pool in Pottawatomie County, to the Cromwell section, ripped 7-inch casing from 3,500-60 feet, and got a hole full of water. It was then abandoned.

Peru Oil & Gas Co. found Simpson dolomite 3,971 to 4,053 feet, total depth, good for 40 bbls. of oil initial swabbing, and its No. 1 Vinson, NW SE NE Section 13-7-4, St. Louis Pool in Pottawatomie County, was completed.

On the east side of the St. Louis Pool, Sinclair Prairie Oil & Gas Co.'s No. 6 Davis, SE SW NE Section 18-7-5, failed to make a commercial well in Simpson dolomite, 4,095-4,199 feet, total depth, and it was abandoned.

Magnolia Petroleum Co. had completed for a small well its No. 3 Davis, NW NE NE Section 15-7-4, St. Louis Pool in Pottawatomie County. Simpson dolomite formation logged at 4,100 to 4,157 feet, total depth, was treated with 1,000 gallons of acid and responded with 40 bbls. of oil in 24 hours on the pump. Water was showing up at the base and it had been plugged back to 4,127 feet before it was acidized.

New operations in the St. Louis Pool in Pottawatomie County follow: Watchorn Oil & Gas Co. and others' No. 1 Krouch, SE NE NE Section 4-7-4, rig on ground; Mohawk Oil & Gas Co.'s No. 2 Wilsie, SE NE SW Section 7-7-4, cellar and pits; Magnolia Petroleum Co.'s No. 1 Hathcock, NE SW Section 11-7-4 (O.W.D.D.), was drilling at 4,035 feet. old total depth 3,999 feet.

Pittsburg County Test Abandoned

McAlester Petroleum Co. had abandoned at 1,530 feet its wildcat test 12 miles southwest of McAlester in Pittsburg County. This test, No. 1 Chunn, SW SE SE NW Section 29-4-14, originally slated to go to 4,500 feet, was plugged back from 3,000 feet due to a crooked hole and redrilled to 1,530 feet, at which depth the 12-inch casing collapsed.

Fitts Pool

The one and only McLish sand producing well in the Fitts Pool in Pontotoc County, Ed. Moore and others' No. 1 Mitchell, NW SW NW Section 31-2-7, which produced 161 bbls. of oil in 30 minutes from that section last week at 4,415 feet, was reported drilling ahead at 4,495 feet with no increase in production.

A meeting of operators in the Fitts Pool is scheduled Friday morning, April 25, in the office of W. J. Armstrong, chief conservation officer for the State, at which the future development of the McLish zone in the field will be discussed.

Magnolia Petroleum Co.'s No. 7 Norris, NW SW NE Section 25-2-6, Fitts Pool in Pontotoc County, logged the Bromide lime at 4,202 feet, first sand 4,322 feet, second sand 4,367 feet, total depth 4,370 feet in sand, flowed 1,018 bbls. of oil in 24 hours. It was given a 1,000-gallon acid shot and responded with 560 bbls. of oil in six hours, flowing through tubing.

Phillips Petroleum Co.'s No. 3 T. Norris, NE SW Section 25-2-6, Fitts Pool, got the Bromide lime at 4,113 feet, first sand at 4,190 feet, second sand 4,285 feet and stopped at 4,322 feet, total depth. It was completed for 621 bbls. of oil the first hour and 581 bbls. of oil the second hour, flowing through casing.

Stanolind Oil & Gas Co. and others' No. 5 Norris, NW SW SE Section 25-2-6, Fitts Pool, logged Bromide lime at 4,080 feet, first sand at 4,190 feet, second sand at 4,250 feet, McLish lime, 4,290 to 4,297 feet, total depth. It gauged 798 bbls. of oil the first two hours through casing and 284 bbls. of oil the next two hours flowing through tubing.

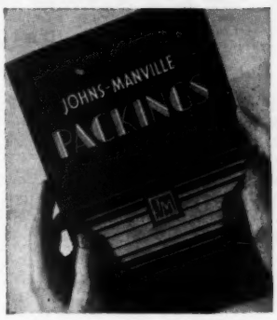
Carter Oil Co.'s No. 8 Hardin, SE SW Section 30-2-7, Fitts Pool, had Bromide lime at 3,870 feet, first sand at 3,970 feet, second sand 4,055 feet, and McLish lime 4,087-92 feet, total depth. Its gauge was 310 bbls. of oil the first hour flowing through casing.

J. A. Crosbie and Moran's No. 1 A. J. Hardin, C N half NW SE NE Section 30-2-7, Fitts Pool in Pontotoc County, was completed for 1,252 bbls. of oil the first two hours, flowing through casing. This well logged the Bromide lime at 4,060 feet, first sand at 4,155 feet, second sand at 4,230 feet and McLish lime 4,268-72 feet, total depth.

Stanolind Oil & Gas Co. and others' No. 9 Hardin, SE SW SW Section 30-2-7, Fitts Pool, was completed during the week, doing 540 bbls. of oil the first two hours through casing and 287 bbls. the next two hours flowing through tubing with an estimated 3,000,000 feet of gas.

(Continued on Page 126)

Packing Problems?



● Written from a background of 60 years' experience. Virtually a textbook on the correct use of packing materials for greater efficiency and economy.

Here's your Book of Answers

ARE you buying too many styles of packing? Too many sizes? Using the right packing in the wrong place?

Get the answers to *all* your packing problems. Find out how you can reduce handling and storage charges; how you can keep the packings inventory within bounds. Send for the new J-M Packings Catalog. (You will be especially interested in its presentation of the J-M Packing Service, a plan which is saving many oil companies substantial sums yearly.) Johns-Manville, 22 East 40th Street, New York City.

Johns-Manville PACKINGS

For Every Oil Industry Service

JM PRODUCTS

Coffing Hoist Pulling Well Rods

	Cap.	Wt.
Model A-¾ ton		14 lbs.
Model F-1½ ton		25 lbs.

Model Z—6-ton Hoist Lifting 12" Pipe Line

	Cap.	Wt.
Model F.T.-3 ton		34 lbs.
Model Z.-6 ton		65 lbs.

These hoists are used for picking up rod lines to oil wells, skidding engines, boilers and cumbersome equipment into place, lifting pipe lines, loading trucks, erecting rigs or wherever a lift or pull is needed. Notice the weights of these little giants taking the place of heavy, cumbersome, expensive equipment.

We also have a Load Binder built on the ratchet principle, well worth your investigation.

Sold by Jobbers of Mill and Oil Well Supplies.

Mfg. by
COFFING HOIST CO.
Danville, Ill.

Race for Production in Central Michigan Field Following Montcalm County Oil Discovery

By PAUL A. ELLIOTT
Staff Correspondent, Michigan Fields

MUSKEGON, Mich., Apr. 22.—The frantic race for new oil production in central Michigan is on, already reaching greater heights within three weeks after the discovery of a probable new major pool in Crystal Township, Montcalm County, than any previous period in the 10-year history of the northern State's oil history.

More than 20 new locations have been made in the vicinity of J. W. Leonard, Jr.'s No. 1 Otto Durbin well in Section 11, Crystal Township, with 10 to 20 more anticipated before the close of the month.

Daily production of the Durbin well, officially rated at 3,594 bbls. pressure, potential, has mounted from 3,156 bbls. during the first week to 3,747 bbls. and upward during the past two weeks. It already has produced more than 80,000 bbls. of crude at $1.02 a barrel. After three weeks of production it is estimated the well would be capable of making more than 5,000 bbls. if allowed to flow unrestricted with the cable and tools removed. It was rated for potential under 350 pounds back-pressure and after flowing wild for 23 hours. Pressure has been maintained, it is reported, despite the increased production.

The Simrall Pipe Line Co. is now moving the bulk of the production by pipe line to railroad tank cars at Riverdale, while the Pure Transportation Co. is expected to complete its line from the well to the Pere Marquette Railroad near Vestaburg this week.

Crystal Locations

Twenty-five new locations, including about 15 already under permit with most of them moving in, rigging up, spudding or drilling, and the rest staked out ready to be started soon, were reported late last week.

Thirteen of the 23 are in Sections 1, 2, 3, 10, 11 and 14 of Crystal Township, five are in Sections 7, 17 and 18 of the adjoining New Haven Township, Gratiot County; two are in Ferris Township, Montcalm County, north of the discovery well, and one is in nearby Sumner Township of Gratiot County.

Eastern Gulf Oil Co., one of the new major concerns which have entered Michigan during the past few months, already has started drilling its No. 1 George W. Barger, SW SW SE Section 2-10n-5w, Crystal Township. J. W. Leonard, Jr., and others also have started drilling No. 1 C. R. West estate, NE NE NW Section 11, same township, the direct west offset to the discovery.

McClanahan Oil Co., first to make a new location and move in a rig after the discovery well came in Thursday, March 28, skidded the rig one location on its No. 1 Geneva Flint from NE NW NE to NE NE NE Section 11, Crystal Township, and is starting over.

Taggart Brothers, Inc., of Big Rapids, developers of the Austin Township, Mecosta County, gas field now recognized as one of the two largest gas areas in the state, last week started moving in a rotary rig for the No. 1 Fred Smith, SW SW SW Section 1, Crystal Township, better known as the "school house tract," including 39 acres recently leased by Taggarts, Max Pray and Sam Garfield and associates at a reported price of $30,000. Half the royalty was sold to Howard Atha, of Mount Pleasant, for $8,000.

Taggart Brothers Friday completed a Michigan Stray gas well in the Austin Field to a depth of 1,432 feet after exactly one week of drilling using rotary tools through the drift of several hundred feet and cable tools to finish. They hope to complete a Dundee well on the Fred Smith lease, SW SW SW Section 1, Crystal Township, to a depth of about 3,200 feet in 15 to 20 days.

Seven other new locations in Crystal Township include the No. 2 and No. 3 C. R. West estate sites of J. W. Leonard and others, the former SE SE SW Section 2 and the latter located NW NE NW Section 11; the Daily Crude Oil Co.'s No. 1 J. Tow, SE NW SW Section 2; Fred W. Turner's No. 1 M. J. McConkey, NW SE SW Section 10; Gordon Oil Co.'s No. 1 Frost heirs, SE SE SW Section 3; Rowmor Corp.'s No. 1 Otto and Goldie Durbin, SE SW SE Section 2; and T. F. Caldwell's No. 1 G. Ingersoll, NE NW NE Section 14. These complete the list placed under permit in the township during the past two weeks.

Four other projected tests also were reported, including Strange Oil & Gas Co.'s No. 1 Day, NW NE NW Section 14, and Del Fortney's proposed test in Section 2, one which may be drilled by the Benedum-Trees Oil Co., of Pittsburgh, in the village of Crystal, and one for which tools were moved in last week on the Elmer Curtis farm in Section 12.

Tests in Nearby Townships

Five new locations have been announced in New Haven Township, Gratiot County: T. W. Kelley and J. E. Evans, trustees' No. 1 Anastasia Pencak, NW NW NW Section 18-10n-4w, and T. F. Caldwell, Inc.'s No. 1 on the Federal Land Bank and David A. Lindsey lease, NW SW SW Section 18; John Melvin's No. 1 Shaver, Section 4; Columbia Oil & Gas Co.'s No. 1 Davenport, NE SW Section 7, and McClanahan-Gallagher's No. 1 Akin, SE SE NE Section 7. Two tests have been announced in Newark Township, Gratiot County: Newark Gas & Oil Co.'s No. 1 George Beck, NE SE NE Section 29-10n-3w, and Wicker and Munger's No. 1 Kellogg in Section 17.

Mammoth Petroleum Corp. will drill on the Doctor Graham lease, SW SE SW Section 31, Sumner Township, while two other tests are being planned in Ferris Township, B. C. Weller's No. 1 Pugsley, SW SW NW Section 36, and the Roosevelt Oil Co.'s No. 1 in the SW NE Section 36, several miles north of the discovery.

Drilling Regulations

Limitation as to the number of wells to be drilled in the new Crystal Field and in Ogemaw County during the year is being considered. A telegram from federal authorities recommended limiting the Crystal Field to eight wells under a temporary plan until a permanent plan can be worked out. With a number of 10-acre tracts near the Durbin well there may be some difficulty in limiting drilling to one well to each 10 acres.

Completions

An important gas completion indicated a new pool in Winfield Township, Montcalm County, near Howard City. Ten Dundee oil wells were completed in five fields adding an aggregate initial of about 3,500 bbls. a day to the State's output.

The new gasser unexpectedly blew in with an open flow capacity of 5,750,000 feet in the Michigan sand when L. G. Thompson's No. 1 James K. Knapp, E half SE NE Section 12-12n-9w, struck the Michigan Stray sands at 1,243 feet and was drilled to 1,253 feet, or 10 feet in. It is about 30 miles northwest of the Crystal oil discovery, about 12 miles south of the Austin Township, Mecosta County, gas field, about 10 miles west of the Hinton-Millbrook-Belvidere gas field in Mecosta and Montcalm Counties and about midway between the Mount Pleasant and Muskegon Fields. It is also about 5 miles north of L. E. DuVall's No. 1 Mrs. Henry Eiknroch, NE NE NW Section 13-11n-10w, Pierson Township, Montcalm County, shut down just above the Michigan Stray sands at 1,235 feet for several months.

Another Montcalm County gasser good for about 5,000,000 feet a day was encountered in the Michigan Stray sands in the Home Township oil field by Daily Crude Oil Co.'s No. 5 Mrs. Carey Christensen, SW NW NE Section 10-12n-6w. It will be completed as a gasser although started for test to the upper Traverse for oil. Three other wells are making Traverse oil on the lease.

Other New Gassers

Two other new gassers last week increased the aggregate initial of the week to more than 20,000,000 feet. Both were in the proved Austin Township, Mecosta County, and Broomfield Township, Isabella County fields. Alma-Mecosta Oil & Gas Co. brought in the largest gasser of the week when its No. 12 Taggart Brothers, Inc. test on the Robert Fish property made 7,600,000 feet a day at 1,432½ feet. Michigan Stray sands were topped at 1,426 feet, drilled in exactly seven days, cemented on the eighth day and completed Friday. Mohawk Oil & Gas Co.'s No. 1 Harry Gatehouse, in Section 14, Broomfield Township, Isabella County, made 2,200,000 feet open flow at 1,311 feet.

Midland County

Six new Dundee oil wells, two of which made 1,500 bbls. and more than 1,600 bbls. a day, respectively, added more than 3,300 bbls. initial to the output of the Greendale and Porter Township areas in Midland County. Pure Oil Co.'s No. 5 C. D. Alexander, NE NE NE Section 19-13n-1w, was rated at 1,669 bbls. on a third-hour test after drilling to 3,421 feet, and Theodore Oil Co.'s No. 7 J. W. Campbell, SE SE NW Section 17, same township, made an estimated flow of 1,500 bbls. topping the Dundee at 3,386 feet and drilling to 3,396 feet. Pure's No. 5 Floyd Younglove, SW SW SW Section 17, made 150 bbls. a day at 3,426 feet.

Pure's No. 4-B Mattie Yost, C S half SW SE Section 34-14n-2w, Greendale Township, was the largest of three new wells in the original Mount Pleasant Field, making 350 bbls. a day after acid treatment at a total depth of 3,450 feet. Michigan Producers & Refiners' No. 2 Pringle heirs, SW NE SW Section 14, same township, made 90 bbls. in seven hours after acid treatment and was estimated good for 250 bbls. a day. Dundee was encountered at 3,509 feet and the hole drilled to 3,552 feet. Great Central Oil & Gas Co.'s No. 1 Emmett Scott, SE SE NW Section 8, Greendale, made 75 bbls. in 12 hours and was rated at 125 bbls. topping the Dundee at 3,517 feet and finishing at 3,572 feet.

Northern Oil & Gas Corp.'s No. 2 Hattie M. Hodge, NW NW SW Section 18, Porter Township, was plugged and abandoned after about 18 months of drilling to 3,449 feet.

Isabella County

Two Dundee oil producers were completed in Denver Township, Isabella County. Chartiers Oil Co.'s No. 1 Edgar O. Graham, SE SE SW Section 28-15n-3w, a north offset to the Mammoth Petroleum Co.'s No. 1 Johnson, made 105 bbls. in 12 hours and was estimated good for 200 bbls. a day at 3,606 feet. McClanahan Oil Co.'s No. 1 B. Wonsey produced 11 bbls. an hour to start but settled down to 75 bbls. a day.

Ogemaw County

Two small Dundee oil wells were completed in West Branch and Ogemaw Townships, Ogemaw County, after treatment. Weber Oil Co.'s No. 1 Robert H. Zahm, Section 34-22n-2e, West Branch, made 60 bbls. a day after topping the Dundee at 2,522 feet and drilling to 2,692 feet. M. J. Ingold's No. 1 Grover Zettle, Section 13-22n-1e, Ogemaw Township, pumped 38 bbls. after topping the Dundee at 2,708 feet and drilling to 2,845 feet.

About 200 feet of oil stood in the hole in William R. Wells and Joseph Malloy's No. 1 Sarah Ann Moss, SW SW SW Section 20, West Branch Township, drilled about 160 feet into the Dundee at 2,723 feet and was to be treated. It is in the southwest corner of the section. Melling Oil & Gas Co.'s No. 1 State of Michigan, in Section 6-21w-3e, Mills Township, which came in unexpectedly 7 feet in the upper Traverse formation at 1,682 feet two weeks ago, made about 70 bbls. after acid treatment.

Wildcat Dry

A wildcat test in the southwestern township of Arenac County, namely, Adama Township, just over the line from Gladwin County, was dry in the Dundee at 3,246 feet and abandoned. It was drilled by the McClanahan Oil Co. on the A. G. Heath ranch, C NW SW Section 31-19n-3e.

Sun Oil Co.'s No. 1 Mary A. Hines, C NW SE Section 31-17n-1w, Tobacco Township, deepest of several tests closer to the Whitehill-Kintner, encountered a show of oil in the Traverse formation causing renewed interest in an area where one "duster" has been drilled since the discovery well was brought in last December. The Hines was drilling at 3,400 feet with about 500 feet to go to the Dundee.

New Locations

Denver Township, Isabella County: Gordon Oil Co.'s No. 1 George Prout, NW NW NW Section 18-15n-3w, and Henry L. McEvoy's No. 1 Stanley Demski, SE SW SE Section 28. Isabella County: W. J. Bernier's No. 1 William Nicholson, C NE NW Section 14-14n-6w, Broomfield Township; Morris-Van Keuren Oil & Gas Syndicate's No. 4 Heirs of J. A. Bowman estate, NW NE NW Section 27-16n-4w, Vernon Township, and T. K. Buzard's No. 1 Peter Mahon, NE SE SE Section 24-15n-4w, Isabella Township. Ogemaw County: Arthur Morris' No. 1 Golf Club, SW SE SW Section 20-22n-2e, West Branch Township; Frank C. Patterson's No. 2 William J. Price, SE SW SE Section 31-22n-3e, Churchill Township, and Thompson Brothers, Inc.'s No. 1 Mills Estate, NW SE SW Section 31-21n-4e, Richland Township. Midland County: Roosevelt Oil Co.'s No. 8 J. W. Campbell, NE SE NW Section 17-13n-1w, Porter Township.

Five wildcat locations were announced: Anthony Czaczkowski's No. 1 Joseph Stohaszynski, NE SE SW Section 27-19n-4e, Deep River Township, Arenac County; Smith Petroleum Co.'s No. 1 Katherine Moser, Hazel Trimmer and Harold Moser, C NE SE Section 20-17n-10w, Richmond Township, Osceola County; same company's No. 3 Edward Parl-

(Continued on Page 126)

More Indications of New Pools in Kansas Area; Production of State Fluctuated But Slightly

By JAMES McINTYRE

Kansas production the past week fluctuated but slightly in most pools. Burrton-Haury dropped off 2,500 bbls. only to be offset with an increase in Russell County production amounting to 2,175 bbls. which, coupled with increases in other areas, netted the State a daily average of 146,523 bbls., an increase of 2,498 bbls. over the previous week's figure.

With the dust storms abating somewhat, reports indicating that at least a portion of the spring crops were assured growth and an anticipated seasonal increase in the consumption of crude and its products, a boost in the allowable production of the State is undoubtedly welcomed. Petroleum Administrator Ickes, in authorizing the allowable production for the month of May, set the state figure at 148,400 bbls., a liberal increase of 7,400 bbls. over the April allowable of 141,000 bbls.

Potential tests taken on 271 wells in the Ritz-Canton Pool of McPherson County showed a decline of 32 per cent from the potential taken three months earlier. The total potential of the 271 wells was 12,221 bbls., according to Umpire Theodore Morgan.

The week ended with a loss of four operations in Kansas fields. There were a total of 20 new starts against 24 completions. The summary follows: First reports—Sedgwick County, 1; Coffey County, 1; Chase County, 1; Woodson County, 1; Cowley County, 3 (1 wildcat); Russell County, 1; Ellsworth County, 1; Rice County, 4; Sumner County, 1 wildcat; Reno County, 2 wildcats; McPherson County, 3, and Harvey County, 1. Completions—Sedgwick County, 1 oil well for 490 bbls.; Butler County, 1 oil well for 182 bbls. and 1 gas well for 2,000,000 feet; Greenwood County, 2 oil wells for 50 bbls. and 1 dry hole; Woodson County, 1 wildcat dry hole; Russell County, 2 oil wells for 1,218 bbls.; Ellsworth County, 1 wildcat for 1,150 bbls.; Rice County, 6 oil wells for 4,188 bbls. (1 wildcat for 238 bbls.); Reno County, 2 locations abandoned and 6 oil wells for 4,804 bbls.

Kansas Production

Estimated daily average production of Kansas for the week ended April 20 and for the preceding week follows:

	Barrels	
	Apr. 20	Apr. 13
Haury-Burrton	21,850	24,375
Ritz-Canton	9,350	8,975
Hollow	4,925	4,550
Voshell	5,000	4,625
Johnson	1,503	1,532
Nikkell	4,950	4,900
Sedgwick County	8,431	8,625
Ellsworth County	5,121	4,653
Barton County	1,643	2,362
Rice County	20,872	18,597
Ellis County	706	564
Kingman County	1,017	1,252
Stafford County	2,084	1,976
Russell County	13,225	11,057
Greenwood County	11,000	11,000
Butler County	18,750	18,750
Other pools	16,096	16,232
Total Kansas	146,523	144,025

Russell County

Aylward and others pumped 949 bbls. of oil from the Oswald lime at 3,025-3,085 feet, total depth, after same had been acidized, and their No. 3 Mills, SW NE Section 4-14-15w, in the Gorham Pool of western Russell County was completed.

In the Neidenthal Pool of western Russell County, Phillips Petroleum Co. had completed its No. 1 Boxberger, NW SW NW Section 24-14-15w, in the Siliceous lime at 3,224-37 feet, total depth, for 269 bbls. on the pump.

Hartman and Blair had run 6-inch casing to 2,929 feet in their No. 1 Hilderbrandt, Russell County wildcat, in the NW NE SW Section 12-14-14w, and were pulling the 8-inch casing. Oswald lime topped at 2,925 feet returned a small show of oil at 2,970-75 feet. Total depth was 3,086 feet.

In the Sellens Pool of southern Russell County, Hershey and Ashby's No. 1 Eichman, NW SE Section 34-15-13w, topped Siliceous lime at 3,316 feet, got first oil at 3,321 feet, increase in oil at 3,323-25 feet, and at total depth of 3,326 feet in lime the hole filled 2,800 feet with oil in 17 hours. No test of production had been made.

Northeast of the Neidenthal Pool in Russell County, Kirk and Jones' No. 1 Milberger, NE NW NW Section 7-14-14w, topped Oswald lime at 3,065 feet, getting 500 feet of oil and 1½ bbls. of water in three hours at 3,145 feet. At 3,150 feet an increase was had in water and it was drilling at 3,200 feet.

Central Petroleum Co. at its No. 2 Dortland "D," SE NW Section 4-14-15w, Gorham Pool in Russell County, had top Oswald lime at 3,023 feet, swabbed 50 bbls. of oil at 3,041 feet, and was drilling ahead at 3,056 feet.

In the Russell Pool of Russell County, British American Oil Co. was drilling at 3,015 feet, 5 feet in the Oswald lime in its No. 1 Boxberger, NE cor. Section 33-13-14w.

Palmer Oil Corp. had logged the Oswald lime at 3,005 feet in its No. 4 Borrell, C E half E half SE Section 21-13-14w, Russell Pool, encountered a hole full of water at 3,035 feet and was drilling ahead at 3,100 feet, with 8-inch casing set at 2,999 feet.

Stanolind Oil & Gas Co.'s No. 31 Baxter, SW SE Section 32-13-15w, Gorham Pool of western Russell County, topped the Oswalk lime at 3,055 feet, set 5-inch casing at 3,060 feet, and from 3,078-81 feet indicated an oil well, but at 3,101 feet, total depth, when plugs were drilled it made only 4 bbls. of oil and 12 bbls. of water. It will probably be acidized after plugging back a few feet.

In the extreme northwestern part of Russell County in the North Fairport Pool, Joe Liggett's No. 1 Chrisler, SW NW SW Section 9-11-15w, was deepened from old depth of 3,105 feet to 3,280 feet where it was estimating good for 100 bbls. of oil daily. It was standing acidized with 2,000 gallons.

Material was being moved in for J. J. Hall and others' No. 2 Miller, NE cor. Section 31-14-13w, Hall Pool in Russell County.

Ellsworth County

Carter Oil Co. and others had completed their wildcat test south of the Lorraine Pool in Ellsworth County, No. 1 Teubner, SE NW Section 26-17-9w, its gauge being 832 bbls. of oil in 17½ hours from Siliceous lime logged from 3,177½ to 3,179 feet, total depth.

Lario Oil & Gas Co. and others had a fishing job at 3,098 feet in their No. 1 Wright, SW NE Section 17-16-8w, central Ellsworth County. Kansas City lime topped at 2,695 feet had a small show of oil at 2,701 feet.

Pryor & Lockhart and others' No. 1 Gregory, wildcat test about 4 miles due south of Ellsworth, SE cor. Section 19-16-8w, encountered a hole full of water in the Viola lime topped at 3,274 feet, and it was shut down at 3,386 feet.

In the Breford Pool, southwestern Ellsworth County, Magnolia Petroleum Co., in its No. 4 Andrea, NE NW SW Section 7-17-10w, was underreaming 6-inch casing from 3,282 feet. Siliceous lime was logged at 3,368 feet and total depth was 3,369 feet.

Atlantic Oil Producing Co.'s No. 3 Rolfe, NW NE SE Section 14-17-9w, Lorraine Pool in Ellsworth County, encountered Siliceous lime from 3,193½ to 3,197 feet, total depth, set 6-inch casing at 3,192½ feet and it pumped 765 bbls. of oil in 24 hours. It had not been completed.

Vickers Petroleum Co. and others had a rotary rig up for their No. 2 Janssen, NW SW NW Section 13-17-9w, Lorraine Pool in Ellsworth County.

Reno County

Reno County's major pool, Burrton-Haury, is being watched with critical eyes since the advent of water in several of the recently completed wells bordering the pool and water encroachment in some of the older producers. It seems this condition might be the result of excessive acid treatment in some cases.

Barnsdall Oil Corp.'s No. 10 Sabin "C," NE SE SE Section 11-23-4w, on the east side of the pool, topped Hunton lime at 3,608 feet and stopped at 3,617 feet, total depth, where it pumped 48 bbls. of oil and 465 bbls. of water in eight hours. It was acidized with 1,000 gallons and completed for 128 bbls. of oil and an estimated 2,000 bbls. of water in 24 hours on the pump.

Ledo Oil Co., at its No. 2 Neufeldt, SW NW NW Section 12-23-4w, Burrton-Haury Pool in Reno County, was completed in the Hunton lime, 3,614-21 feet, total depth, for 1,496 bbls. of oil in 24 hours after being acidized with 1,000 gallons.

Wilcox Oil & Gas Co. had abandoned location for its No. 3 Neufeldt, SE SW NW Section 12-23-4w, Burrton-Haury Pool.

National Union Co.'s No. 3 Ackley, NE SE Section 14-23-4w, Burrton-Haury Pool in Reno County, failed to produce from acidized Hunton lime at 3,596-3,612 feet, total depth, and it was plugged back and completed for 114 bbls. of oil and 10,000,000 feet of gas in the Chat formation logged at 3,262 feet. The 7-inch casing was ripped in several places between 3,250 feet and 3,360 feet in order to get the Chat production.

Olson Drilling Co. and Shell Peroleum Corp.'s No. 10 Downie, SE NW NE Section 14-23-4w, Reno County, Burrton-Haury Pool, was a location abandoned.

A light well was had in Sinclair Prairie Oil & Gas Co.'s No. 3 Harner.

Wildcat Operations in Kansas

Week Ending April 20

(Descriptions are East unless marked otherwise)

BARBER COUNTY

Sam Jarvis et al's No. 1 Morrisse, C SE NE Sec. 23-30-10w.
Rig.

Southern Drlg. Co. et al's No. 1 Davis, 330 ft. from W and 330 ft. from S lines of NE Sec. 13-34-15w.
S.D. 2,865 ft.

L. H. Wentz' No. 1 Skinner, SE NW NW NE Sec. 29-31-14w.
Bldg. rig.

BARTON COUNTY

D. I. Hall et al's No. 1 Arnold, SE SE SW Sec. 19-18-15w.
Moving in tools.

Lario O. & G. Co. et al's No. 1 Nuss, NW SW SW Sec. 11-16-14w.
Drlg. 610 ft.

Lario O. & G. Co. et al's No. 1 Nuss, NW SW SW Sec. 11-16-14w.
Drlg. 910 ft.

McMorrow & Spencer's No. 1 Hagen, NE cor. Sec. 33-20-11w.
Conglomerate 3,375 ft.; drlg. 3,450 ft.

C. L. Price et al's No. 1 Ehrlich, NW SE Sec. 10-16-13w.
T.D. 360 ft.; fishing.

Pryor & Lockhart's No. 1 Herrington, NE NW Sec. 6-16-12w.
Rig.

Suppes & Witt's No. 1 Hayes, SW cor. Sec. 7-16-15w.
Rig.

Wolf Creek Oil Co.'s No. 1 Kraft, SW cor. Sec. 26-16-11w.
U.R. 8-in. csg. 3,005 ft.

CLAY COUNTY

Seidel Bros.' No. 1 Younken, C S½ SE NW Sec. 21-9-4.
Mississippi 1,772-81 ft.; est. 25 bbls. oil and some wtr.

COWLEY COUNTY

Baden, Johnson, Roth & Farrout's No. 1 David, NE SW Sec. 35-30-4.
Moving in materials.

Lloyd, Frost & Study's No. 1 Weathered, SW SE SE Sec. 28-31-3.
H.F.W. 1,940 ft.; S.D.

A. McCoy's No. 1 Brandenburg, SW SE SE Sec. 17-34-5.
S.D. 2,020 ft.

ELLSWORTH COUNTY

Carter Oil Co. et al's No. 1 Teuber, 440 ft. N and W of C Sec. 26-17-9w.
Siliceous lime 3,177½-79 ft.; T.D.; pump 832 bbls. oil in 17½ hrs.; comp.

Lario O. & G. Co. et al's No. 1 Central National Bank, SE NW Sec. 33-15-8w.
Spud.

Lario O. & G. Co.'s No. 1 Wright, SW SW NE Sec. 17-16-8w.
T.D. 3,098 ft.; fishing.

Lario O. & G. Co.'s No. 1 State, SW cor. Sec. 29-15-8w.
Show gas 2,195-2,200 ft.; drlg. 2,225 ft.

Pryor & Lockhart's No. 1 Gregory, SE SE SE Sec. 19-16-8w.
Viola lime 3,274 ft.; 3,380-86 ft., T.D.; H.F.W.; S.D.

Western Exploration Co.'s No. 1 Wilkins, NW SW NW Sec. 9-17-9w.
Moving in material.

HARVEY COUNTY

Cameron, Derby Oil Co. and Trees' No. 1 Brainard, SW SE NW Sec. 19-24-2.
Drlg. 1,420 ft.

Goering Bros.' No. 1 Brainard, NE SW Sec. 3-23-2w.
Rigging up.

Hartman & Blair et al's No. 1 Redinger, NW cor. Sec. 15-24-3w.
Cellar.

D. R. Lauck et al's No. 1 Baller, SW cor. Sec. 29-24-1.
Rig.

L. W. Prunty et al's No. 1 Davis, NE cor. Sec. 6-22-1w.
Chat 2,922 ft.; drlg. 2,928 ft.

Twin Drlg. Co. et al's (O. J. Connell), No. 1 Roth, SW cor. Sec. 16-22-2w.
Drlg. 2,120 ft.

Wenzel et al's No. 1 Schrag, NW SE Sec. 24-22-3w.
T.D. 587 ft.; S.D. for csg.

Winkler, Koch et al's No. 1 Mueller, SE SW NW Sec. 15-23-2w.
Bldg. rig.

McPHERSON COUNTY

Brosius et al's No. 1 Hanson, NE NE SW Sec. 15-17-2w
T.D. 1,108 ft.; S.D.

Carey & Miller's No. 1 Husband, SE SE NW Sec. 6-19-2w.
Moving in material.

Lario O. & G. Co.'s No. 1 Base, SW cor. Sec. 22-20-2w.
Wilcox 3,495 ft.; H.F.W. 3,505-10 ft.; Siliceous lime 3,556-62 ft.; T.D.

W. C. McBride's No. 1 Mugler, SE SW SW Sec. 22-20-3w.
K.C. 2,430 ft.; H.F.W. 2,556 ft.; run. 8-in. csg. 2,678 ft.

Palmer Oil Corp.'s No. 1 Swenson, NE NE SW Sec. 11-18-3w.
K.C. lime 2,370 ft.; T.D. 2,725 ft.; H.F.W.; U.R. 8-in. csg.

Shell Pet. Corp.'s No. 1 Wenger, NE cor. Sec. 2-20-1w.
Viola 3,356-64 ft.; T.D.; swabbing 112 bbls. oil in 8 hrs.

Stafford et al's No. 1 Krehbiel, NW NW SE Sec. 27-21-3w; (O.W.D.D.).
C.O. at 2,080 ft. and S.D.

NESS COUNTY

Phillips Pet. Co.'s No. 1 Young, C NW SW Sec. 13-18-21w.
K.C. lime 3,640 ft.; T.D. 3,649 ft.; R.U. cable tools.

OSAGE COUNTY

Jim Edwards' No. 1 Detrick, C NW SE Sec. 21-14-15.
Show oil and gas 783-800 ft.; enlarging hole.

(Continued on Next Page)

SE NE SW Section 14-23-4w, Burrton-Haury Pool, the Hunton lime at 3,595-3,599 feet, total depth, making 224 bbls. of oil and 17 bbls. of water in 24 hours on the pump for its completed gauge.

Olson Drilling Co., Shell Petroleum Corp. and Continental Oil Co.'s No. 7 Blake, NE SW Section 23-23-4w, Burrton-Haury Pool in Reno County, pumped 1,029 bbls. of oil in 24 hours from Hunton lime 3,581-3,601 feet, total depth, after a 2,000-gallon acid shot.

Olson Drilling Co. and Shell Petroleum Corp. completed their No. 3 England, SE NW SE Section 34-23-4w, Burrton-Haury Pool, in the Hunton lime logged from 3,593 to 3,604 feet, total depth, which produced 1,813 bbls. on its potential 24-hour gauge on the pump.

About 4½ miles west of the south tip of the Burrton-Haury Pool of Reno County, and on the general trend of the Abilene Arch, L. A. Mylius and others were moving in material for their wildcat test, No. 1 Sprowl, NE NW NE Section 1-24-5w.

Gypsy Oil Co. had made location and was moving in material for a wildcat test in southeastern Reno County. It will be known as No. 1 Tonn, location being SW NW SE Section 16-25-4w.

Rice County

About 5 miles due south of Lyons in central Rice County, Foraker and Nickerson and others, in No. 1 Lyon, SE NW Section 27-20-8w, had Viola lime logged at 3,441 feet, and 5-inch casing was being underreamed at 3,460 feet, total depth. A hole full of water had in the Misener sand at 3,396-3,426 feet was to be cased off.

Magnolia Petroleum Co. had completed its No. 2 Beyers, SW NW Section 21-19-9w, Grove Pool in Rice County, its certified potential gauge being 893 bbls. of oil in 24 hours on the pump, production coming from acidized Siliceous lime logged from 3,224 feet to 3,246 feet, total depth.

In the same pool, Phillips Petroleum Co. in its No. 4 Link, SW NE SW Section 21-19-9w, Rice County, found Siliceous lime at 3,209-3,230 feet, total depth, good for 611 bbls. on its completed gauge.

Empire Oil & Refining Co. had deepened its No. 1 Tournear, NW SE NE Section 29-19-9w, Grove Pool in Rice County, from 3,213 feet to 3,219 feet, new total depth, in Siliceous lime, where it was acidized with 1,000 gallons to yield 1,551 bbls. in 24 hours on its potential gauge.

Farther west in Rice County, Vickers Petroleum Co. and others' No. 2 Specht, NE SE NE Section 20-20-10w, Raymond Pool, produced on the pump 530 bbls. of oil the first 24 hours and 464 bbls. the second 24 hours from Siliceous lime tallied from 3,337 to 3,339 feet, total depth. It was a completion and it had been acidized.

Phillips Petroleum Co., logging Siliceous lime in its No. 5 Mezger, NE SW NE Section 21-20-10w, Raymond Pool in Rice County, from 3,353 to 3,366½ feet, total depth, found it good for a potential gauge of 316 bbls. of oil in 24 hours on the pump.

Gypsy Oil Co. had officially completed its recent Siliceous lime discovery about 3 miles southeast of Chase in Rice County. This test bottomed at 3,267 feet, 28 feet in Siliceous, was plugged back to 3,265 feet account of water, and acidized with 100 gallons to potential 238 bbls. of oil in 24 hours.

New operations started in Rice County the past week were: Slick-Urschel, Pryor & Lockhart and others' No. 3 Orth, SW NE Section 27-18-10w, rig; Phillips Petroleum Co.'s No. 5 Link, NE NW SW Section 21-19-9w, rig; Shell Petroleum Corp.'s No. 5 Tournear, NW SW SE Section 29-19-9w, building rig, and Elwell and others' No. 1 Lisk, NE SW Section 32-19-9w, rig.

McPherson County

Shell Petroleum Corp.'s Viola lime discovery southeast of the Ritz-Canton Pool in eastern McPherson County, No. 1 Wenger, NW cor. Section 2-20-1w, on an eight-hour swabbing test produced 112 bbls. of oil and showed some water, the source of the water not determined. Viola lime was logged at 3,356-64 feet, total depth.

Palmer Oil Corp.'s wildcat, No. 1 Swenson, in the NE SE Section 11-18-3w, northeast of McPherson in McPherson County, topped Kansas City lime at 2,370 feet, encountered a hole full of water from 2,680-2,700 feet and at 2,725 feet the 8-inch casing was being underreamed.

In the McPherson Pool area of McPherson County, Mead Brothers and others' No. 1 Chindberg, SE NW SE Section 19-18-2w, had a show of oil at 2,328 feet in Kansas City lime topped at 2,320 feet, but a hole full of water was had from 2,417-20 feet and 8-inch casing was being lowered at 2,428 feet, total depth, to shut off the water.

Dickey Oil Co.'s No. 2 Gustafson, SE SW NW Section 30-18-2w, McPherson Pool in McPherson County, swabbed 27 bbls. of oil in nine hours from Kansas City lime, 2,340-51 feet, total depth. It had not taken a potential test of production.

In the Chindberg Pood in McPherson County, Roth & Farrout's No. 4 Swanson, SW NE Section 13-19-3w, was developing into an oil well in the Chat horizon topped at 2,940 feet. Pay was at 2,998-3,006 feet, total depth, which put 1,000 feet of oil in the hole in four hours and it had an estimated 3,000,000 feet of gas.

Missing production in the Chat formation, Shell Petroleum Corp. was rigging up standard tools at 3,372 feet, total depth, to drill into the Viola lime topped at 3,369 feet in No. 4 Lovett, SW NW NW Section 13-19-2w, Ritz-Canton Pool of McPherson County.

East of the Chindberg Pool about three-quarters mile, Ogden Brothers in their No. 1-A Chindberg, NE SE NW Section 18-19-2w, McPherson County, logged Chat at 2,982 feet and at 3,017 feet, total depth, it was acidized with 1,000 gallons, netting 12 bbls. of oil per hour for eight hours, after which time it was shut in for 48 hours. Opened later it produced on the pump 10 bbls. of oil per hour for four hours. It had not been completed.

McPherson County new operations for the week follows: Dickey Oil Co.'s No. 4 Tull, SE SW Section 13-19-3w, Chindberg Pool, a cellar; in the Ritz-Canton Pool, Shell Petroleum Corp.'s No. 9 Deckel, SW NE Section 11-19-2w, was a rig; same company, same pool, No. 4 Hull, NE SW Section 11-19-2w, was building rig.

Butler County

Sheldon and Wixson's No. 1 Wilson, NE NW NE Section 1-25-3, Potwin district of Butler County, was completed in the Chat formation, 2,657-2,711 feet, total depth, for 182 bbls. of oil on the pump. Water showed up at 2,711 feet and it was plugged back to 2,690 feet and acidized, resulting in the above gauge.

Blair and others' No. 1 Blair, SW SE SW Section 22-29-6, Butler County, was plugged back from 2,273 feet, total depth, to 2,053 feet, 10 feet in the Chat topped at 2,043 feet, and completed for an estimated 2,000,000 feet of gas.

Harvey County

In the Nikkel Pool of Harvey County, Shell Petroleum Corp.'s No. 2 Schmidt, NE SE NE Section 5-22-3w, was showing for a small well in Hunton lime logged at 3,495-3,519½ feet, total depth, swabbing 15 bbls. of oil in 18 hours. It was scheduled for a shot of acid.

Sinclair Prairie Oil & Gas Co. at its No. 8 Martens, SE NW SE Section 19-22-3w, an old Hunton lime producer in Hollow Pool in Harvey County, had 125 feet of water in the hole at 3,586 feet, 20 feet in Wilcox sand topped at 3,566 feet and it was shut down.

Winkler & Koch and others were building rig for No. 1 Mueller, SE SW NW Section 15-23-2w, a wildcat location about 1 mile south of production in the Halstead Pool.

Sedgwick County

Practically all development in Sedgwick County at an interesting stage of development was confined to the Robbins Pool, which is located 3 miles south of Wichita. E. B. Shawver had acidized the second time his No. 5 Russell, SW SE Section 17-28-1e, which was standing at 3,120 feet, total depth, waiting on effects of the acid treatments. Chat formation was topped at 3,071 feet.

Cable tools were being rigged up on Dickey Oil Co.'s No. 5 Nolan, SW SE NE Section 20-28-1, Robbins Pool, in Sedgwick County, which had Chat logged at 3,083-90 feet, total depth.

Magnolia Petroleum Co.'s No. 7 Robbins, NE NW SE Section 20-28-1, Sedgwick County, swabbed 4½ bbls. of oil per hour from Chat horizon found at 3,085-3,108 feet, total depth. It was being acidized.

Dickey Oil Co. had completed its No. 3 Yaw, SE SW NE Section 20-28-1, Robbins Pool in Sedgwick County, which made 490 bbls. of oil from acidized Mississippi lime drilled from 3,073-3,114½ feet, total depth.

In the same pool, Dickey Oil Co. had cellar dug for its No. 2 Lohkamp, SW SE NW Section 20-28-1, Sedgwick County.

Greenwood County

Ward McGinnis' No. 1-A Prather, C W half, W half NW Section 30-22-10, northern Greenwood County, got a hole full of water in sand 2,510-70 feet, total depth, and the test was abandoned.

York State Oil Co.'s No. 14 DeMalorie "C," C SE NW Section 32-22-11, was shot with 25 quarts in Bartlesville sand 1,954-2,045 feet, total depth, which yielded 15 bbls. of oil daily on the pump. It was a completion for the week.

In the same district, Henderson & Holden's No. 6 Harland, C N half SW NW Section 34-22-11, Greenwood County, logged Bartlesville sand from 1,865 to 1,954 feet, total depth, which responded with 35 bbls. of oil in 24 hours to a 90-quart and a 100-quart shot of nitroglycerin. It was completed.

Woodson County

Kite and others' wildcat, 1 mile south of production in western Woodson County, No. 1 Gorman, NE NW Section 18-25-14, got water in the Mississippi lime at 1,576-1,603 feet, total depth, and it was abandoned.

Elbar Corp. had machine on location for its No. 5 Figge, SE SW SW Section 27-23-14, Woodson County.

Chase County

One new operation was started in Chase County the past week. Selby Oil Co. and others were drilling at 950 feet in their No. 3 Leedy, SE NW SW Section 25-22-9.

Coffey County

A. Hinze and others' No. 3 Vannocker, NE SE NW NE Section 12-23-14, was fishing at 1,400 feet.

Sumner County-Cowley County

Allison & Fitzwilliams and others had staked location the past week for a wildcat test in northern Sumner County. It was No. 1 Hitchcock, SE SE NW Section 16-30-1w.

In eastern Sumner County, Oxford district, Barnsdall Oil Co. and others had encountered Simpson dolomite at 2,889-99 feet, total depth, in their No. 4 Weinrich, NE NW NW Section 23-32-2, which put 135 bbls. of oil in the tanks in eight

(Continued on Page 121)

Kansas Wildcats

(Continued from Preceding Page)

PAWNEE COUNTY

Atlantic Oil Prod. Co.'s No. 1 Siepaka, C NE NE Sec. 15-23s-17w.
Drlg. 2,250 ft.

RENO COUNTY

Bradley's No. 1 Olmsted, SW SW SW Sec. 22-22-7w.
Moving in material.

Foraker et al's No. 1 Hiett, SE SW NE Sec. 34-24-4w.
T.D. 1,285 ft.; S.D.

Gypsy Oil Co.'s No. 1 Tonn, SW NW SE Sec. 16-25-4w.
Moving in rotary materials.

L. A. Mylius et al's No. 1 Sprowl, NE NW NE Sec. 1-24-5w.
Moving in materials.

Privett Drlg. Co.'s No. 1 Crotts, NE NW NE Sec. 27-26-10w.
Viola 4,240 ft.; wtr.; Simpson (corrected) 4,325 ft.; fishing 4,338 ft.

RICE COUNTY

Allison & Fitzwilliams et al's No. 1 Stumps, NW NW SW Sec. 4-18-10w.
Siliceous lime 3,229-61 ft., T.D.; est. 40 bbls. oil dly. on swab; cmtg. 6-in. csg. 3,235 ft.

Day et al's No. 1 Mason, NW NE NE Sec. 28-21-7w.
Drlg. 1,700 ft.

Foraker, Nickerson et al's No. 1 Lyons, SE NW Sec. 27-20-8w.
Viola 3,441 ft.; Misener 3,396-3,426 ft.; H.F.W.; U.R. 5-in. csg.

Gypsy Oil Co.'s No. 1 Koesling, NW NW SW Sec. 10-20-9w.
Set 5-in. csg. 3,240 ft.; Siliceous 3,239-61 ft.; swb. 3 bbls. oil per hr.; acidized and pumped 48 bbls. oil in 7 hrs.; D.D. to 3,267 ft.; T.D.; wtr.; P.B. to 3,265 ft. and pumped 238 bbls. oil; comp.

Fred Rust et al's No. 1 Brown, NE cor. Sec. 16-21-6w.
Rig.

Vickers Pet. Co. et al's No. 1 Gouldner, SE NE NW Sec. 16-18-9w.
Cleaning out 2,060 ft.

BOOKS COUNTY

Smith & Ash's (Carman & Hershey) No. 1 Nelson, NW NW NE Sec. 27-10-16w.
Rigging up.

Stearns & Streeter's No. 1 Hoskins, SE SW SE Sec. 24-9-16w.
Oswald 3,084-3,106 ft.; acidized; pumped 120 bbls. oil; H.F.W. 3,452-54 ft.; T.D.; S.D.

Treese Oil Co. and Findeiss' No. 1 Johnson, SW SW SE Sec. 26-10-19w.
Run 15-in. csg. 334 ft.

RUSH COUNTY

P. Boyle et al's No. 1 Yost, C SW SW Sec. 33-17-18w.
Rigging up.

Lario O. & G. Co. and Phillips Pet. Co.'s No. 1 Beahow, NW NE NE Sec. 13-17-19w.
T.D. 3,790 ft.; fishing.

Morgan & Flynn's No. 1 Schlegel, SE SE NW Sec. 26-17-16w.
Drlg. 2,080 ft.

RUSSELL COUNTY

J. Brouk and R. D. Bailey's No. 1 Kluesner, NW SE Sec. 34-15-12w.
Rigged up.

Hartman & Blair's No. 1 Hildebrandt, NW NE SW Sec. 13-14-14w.
Oswald 2,925-75 ft.; show oil; T.D. 3,086 ft.; run. 6-in. csg.

Murphin et al's No. 1 Funk, SW cor. Sec. 19-13-13w.
Fishing at 3,040 ft.

Ryan Pet. Co.'s No. 1 Newbold, NW SE NE Sec. 25-12-15w.
T.D. 2,055 ft.; S.D.

Vernon & Murphin's No. 1 Becker, NE cor. Sec. 32-15-13w.
Rigging up.

Wakefield & Armer's No. 1 Hall, NE SE SW Sec. 36-14-15w.
Drlg. 100 ft.

Winkler & Koch's No. 1 Herman, SE NW Sec. 27-13-15w.
Spud and S.D.

Wolf Creek Oil Co. et al's No. 1 Penn Mutual, SW cor. Sec. 32-15-15w.
Drlg. 1,165 ft.

SALINE COUNTY

Dieter et al's No. 1 Herrington, NE NW ¼E Sec. 3-13-1w.
Siliceous lime 3,233 ft.; S.D. 3,289 ft.

SEDGWICK COUNTY

Allison & Fitzwilliams et al's No. 1 Struthers, NE SW Sec. 34-28-2w.
H.F.W. 3,176-87 ft.; T.D. 3,295 ft.; fishing.

Magnolia Pet. Co.'s No. 1 Bartholomew, SE SE SW Sec. 30-27-4w.
Chat 3,682 ft.; 9-in. 3,692 ft.; standardizing.

Western Kansas O. & R. Co.'s No. 1 Betzen, SE NE Sec. 17-26-3w.
Drlg. 2,440 ft.

SCOTT COUNTY

Atlantic Oil Prod. Co.'s No. 1 Mark "A," C SE SE Sec. 28-20-33w.
Spudding.

STAFFORD COUNTY

Lario O. & G. Co.'s No. 1 Tudormorgan, SE SE NW Sec. 23-24-13w.
Pumped 65 bbls. oil in 24 hrs.; acidizing.

SUMNER COUNTY

Allison & Fitzwilliam et al's No. 1-B Hitchcock, SE NW Sec. 16-30-1w.
Location.

Shell Pet. Corp.'s No. 1 Green, SE SW NW Sec. 3-33-2.
Drlg. 2,525 ft.

Wakefield et al's No. 1 Newton, SE cor. Sec. 21-30-2.
Rig.

D. J. Wilson et al's No. 1 Clark, 1,320 ft. from W and 25 ft. from S line of NW Sec. 15-35-1w.
Rigging up.

TREGO COUNTY

Central Commercial's No. 1 Wagg, NW NW SE Sec. 17-13-21w.
T.D. 1,600 ft.; fishing.

Hansa & Lauck and Olson Drlg. Co.'s No. 1 Lang, SE SE NW Sec. 1-14-21w.
Rig.

Jenmar Oil Co.'s No. 1 Jones, SE cor. Sec. 20-12-23w.
Oswald lime 3,790 ft.; T.D. 3,880 ft.; 7-in. csg. 3,861 ft.; R.U. cable tools.

WOODSON COUNTY

Kite et al's No. 1 Gorman, NE NW Sec. 18-25-14e.
Mississippi lime 1,576 ft.; T.D. 1,603 ft.; wtr.; D.&A.

Drilling Operations in California Fields Running About Ten Per Cent Ahead of Last Year

By L. P. STOCKMAN
Staff Correspondent, California Fields

LOS ANGELES, Calif., Apr. 20.—Drilling operations in California for 1935 are running approximately 10 per cent ahead of last year and should maintain or better this before the year draws to a close. During the first three months of 1935, California operators have maintained an average of 213 strings of tools in operation as compared with 175 during the same period last year. In the same period 222 new rigs have been erected during the first quarter of 1935, compared with only 127 during the first three months of 1934. During January, February and March of the present year, operators have completed a total of 163 new wells while during the same time in 1934 they had only chalked up 76 new wells. The initial daily production of new wells also reflects this favorable condition as during the first quarter of 1935 the aggregate initial of new wells totaled 201,752 bbls. as compared with 85,351 bbls. for the same period of 1934.

During the entire year 1934, operators erected a total of 641 new rigs and completed 452 new wells which had an aggregate initial daily production of 570,637 bbls. In the first three months of 1935, operators have completed more than twice the number of new wells finished during the same period of last year and the initial production shows a higher percentage. It is significant to note that the average number of drilling wells has only dropped below 200 on one occasion since June 1, 1934. This was during November, 1934, when the average declined to 199. During January, 1935, operators had 205 strings of tools in operation and this rose to 207 in February and reached 227 in March. In as much as drilling operations are expected to continue at a rather aggressive rate in the Playa Del Rey Field and at a normal rate in other fields it is quite likely that drilling operations will continue well above the 200 mark during the remainder of the year. If this holds true, drilling operations during 1935 will be more than 10 per cent above the average for last year.

Potential Production

A year or so ago, a number of operators were predicting that California refiners would be scrambling for oil before the summer of 1935. This pessimistic belief was predicated on the fallacy that existing fields would be unable to meet normal demands. Since that time most of these prognosticators have recognized that there was no basis for such an opinion. The summer months of 1935 are only a short distance ahead and, instead of being bothered with a shortage of crude oil, marketers are worried about what they are going to do with what they have. This is especially significant because of the concerted attempts of refiners and marketers to prolong the Pacific Coast Peroleum Agency beyond the expiration date of June 15, 1935, because they realize that prices will be up and down unless gasoline prices are stabilized and crude oil curtailment made effective.

In view of the pessimistic predictions voiced several months ago, it is interesting to note that the potential daily production of the State has consistently increased from month to month and will probably show a further substantial increase during the next several months. Just how there could be any possible shortage of crude oil while the potential of the State was increasing from month to month is rather hard to understand but nevertheless the predictions are of record. For the month of April, California is given a potential rating of 1,566,721 bbls. per day as compared with 1,534,746 bbls. during March and 1,229,165 bbls. per day in April of last year. California's allowable daily production for May is only 900 bbls. per day in excess of the allowable for April and this seems justified in view of the seamen's strike which has tied up the shipping to some extent. This strike has not interfered with coastwise traffic but has severely reduced the movement of refined oils to the East Coast for domestic consumption.

New Formula

In conformity with a recent ruling of the petroleum administrator, which provides for a new method of determining production quotas for wells in the Kettleman North Dome Field, operators have started making the necessary readjustments and this will be reflected in crude oil production shortly. After issuance of this order, Umpire Pemberton called in a special technical committee to assist in the compilation of the productivity indices and to consider other factors entering into the new formula. The committee, representing operators in the Kettleman North Dome Field, consists of Guido Marx, Standard Oil Co.; Wallace Gordon, Superior Oil Co.; Joseph Jensen, Associated Oil Co.; H. H. Marsh, General Petroleum Corp., and H. B. Pyle of the Union Oil Co. The formula prescribed for the determination of individual well allotments for this field is rather complex as it is to be determined on the basis of relative productivity which will be predicated on the basis of bottom hole pressure and a productivity index factor.

This order, which came through as a result of an appeal by the Superior Oil Co., is of far reaching importance and may become a factor of considerable significance if it is to become a permanent basis for the establishment of production quotas at Kettleman Hills. It should prove very advantageous during the next several months due to decreased demand for natural gas but may prove rather unfavorable next winter when the demand for natural gas reaches its peak. A number of operators are somewhat puzzled by the promulgation of this order although it is nothing new as, to all intents and purposes, it is the California gas conservation law dressed up in new clothes. The State's gas conservation law, by the way, is still on the statute books, although it is not being rigidly enforced as state officials do not wish to prosecute any action that might conflict with or hamper national legislation.

Provisions

Actually the new order reduces the daily output of Union, Superior and Shell but in reality it gives these operators a larger percentage of the field's production. In addition to ordering the application of a new formula for establishment of well quotas, the order stipulates that all wells showing high gas-oil ratios shall be beaned back to the field average or taken off production. Approximately 15 wells in the North Dome of Kettleman Hills show gas-oil ratios far in excess of normal production. The order does not list any specific wells as showing high gas-oil ratios but it is quite evident that Kenda's No. 38-34-J, No. 41-2-P, No. 47-2-P, No. 52-2-P and No. 8-8-Q will come under strict interpretation as these wells all show exceptionally high gas-oil ratios. Gas production of this group of wells ranges all the way from 15,000,000 feet to 40,000,000 feet per day. Several wells of the Standard Oil Co. will probably also come under the ban as No. 87-29-J, No. 21-33-J, No. 8-1-P, No. 32-3-P, No. 81-11-P and No. 261-11-P show a daily production ranging from 13,000,000 feet to 26,000,000 feet of natural gas. There is also a possibility that No. 1 Felix of the Petroleum Securities will also be beaned back as this well is producing approximately 13,000,000 feet of natural gas per day along with its oil production.

The Kettleman North Dome Association will be severely penalized by this order as far as gas production is concerned, although this restriction may greatly increase ultimate production of crude oil, which in the final analysis is what returns the greatest profit to operators. Imposition of a maximum permissible flow of natural gas may become of considerable importance to Kenda because of the Milham Exploration Co.'s priority gas contract with the Pacific Gas & Electric Corp. When the Kettleman North Dome Association was formed it was stipulated that Milham would be permitted to make contractual deliveries from the North Dome of Kettleman Hills, as this would permit the company to keep the Buttonwillow gas field shut in. This was agreed to and became one of the stipulations upon which Milham agreed to sign the unit agreement.

Gas Fields

Up to the present, natural gas produced in conjunction with crude oil has been given preference in supplying the demand for commercial and domestic uses. This policy was adopted in order to eliminate gas waste and was predicated on the basis that dry gas fields could be shut in without suffering any loss and also because if dry gas fields forced operators in oil fields to blow natural gas to the air this would be economic waste and contrary to existing statutes. This problem has not been especially complicated because the Milham Exploration Co., which discovered and holds practically all of the productive acreage in the Buttonwillow gas field, is also a large holder of participating acreage in the Kettleman North Dome Field, which it likewise discovered. In lieu of delivering gas from Buttonwillow, Milham has been making deliveries to the Pacific Gas & Electric Corp. from Kettleman Hills through the medium of the Kettleman North Dome Association.

None of the commercial gas fields in California has become a factor of economic importance up to the present time because, as has been mentioned, natural gas produced in oil fields has been given priority rights. As a consequence, Buttonwillow gas field, discovered several years ago by the Milham Exploration Co., has been shut in since completion of the first well. Up to the present, 27 gas wells have been completed at Buttonwillow and this field is ready to go on commercial production at any time and should show a sustained output of approximately 200,000,000 feet per day. The Goleta gas field, where operators have completed five gas wells since its discovery, is in somewhat the same status, although the potentiality of this field is only about 75,000,000 feet per day. Within the past few months two new gas fields have been discovered by the Standard Oil Co., and while they will eventually become factors of economic importance, it may be several years before they go on commercial production. These two new gas fields are located in the Delano and Semi-Tropic districts of Kern County. The Delano gas field was really discovered by the Trico Oil & Gas Co., as this concern finished the first gas well in the district several months ago and some time before the Standard started work. The Pure Oil Co. has apparently found a new gas field at Chowchilla and exploration work of the Ohio Oil Co. in the Buena Vista Lake region indicates another possible discovery of a dry gas accumulation. Another test or two in each area will be required before this is definitely determined.

Wildcat Tests

The Northern Counties Petroleum Co. is making splendid progress with its wildcat on the Corning anticline in Tehama County and if commercial produc-

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	April 7		March 31			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Fuel oil	.....	.....	.....	.....	.....	4,332,625
Diesel and gas oil	.....	.....	.....	.. ..	527,098	734,436
Gasoline	.....	.....	77,375	11,054	1,586,452	1,645,349
Kerosene	.....	.....	161,273	23,079	463,421	348,665
Foreign exports—						
Crude oil	284,885	40,698	402,490	57,499	2,967,298	1,943,425
Fuel oil	123,725	17,675	295,704	42,243	4,477,957	3,359,821
Diesel and gas oil	27,299	3,900	199,774	28,539	945,433	1,097,511
Gasoline	87,421	12,489	113,571	16,224	1,235,474	1,097,270
Kerosene	6,380	911	18,101	2,586	271,856	257,374
Other finished oil	.....	.....	.....	.....	.....	3,529
Other unfinished oil	.....	.....	.....	.....	42,064	34,363
Coastwise-domestic—						
Crude oil	.. ..	.....	.....	.....	1,424,652	1,762,817
Fuel oil	66,193	9,456	83,291	13,327	2,278,156	3,363,390
Diesel and gas oil	.....	.....	.....	.....	211,867	241,605
Gasoline	75,926	10,847	71,373	10,196	1,877,052	2,941,503
Kerosene	.....	.....	.....	.....	34,598	41,923

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	157,258	448,113
Gasoline	.....	.....	.....	.....	.....	72,625
Kerosene	.....	.....	.....	.....	149,715	197,498
Asphalt	.....	.....	.....	.....	71,325	.....
Lubricants	.....	.....	.....	.....	12,381	8,310
Foreign exports—						
Crude oil	.....	.....	17,048	2,435	550,129	517,100
Fuel oil	.....	.....	.....	.....	400,245	234,129
Diesel and gas oil	.....	.....	210,717	30,103	342,812	580,136
Gasoline	.....	.....	142,603	20,372	780,368	962,634
Kerosene	.....	.....	46,309	6,616	213,898	212,195
Lubricants	.....	.....	1,125	159	50,569	58,458
Other unfinished oil	.....	.....	.....	.....	.....	5,750
Coastwise-domestic—						
Fuel oil	400,544	57,221	.....	.....	1,148,135	958,251
Diesel and gas oil	.....	.....	.....	.....	79,662	87,029
Gasoline	160,728	22,961	88,221	12,603	1,021,621	1,149,718
Kerosene	.....	.....	.....	.....	10,149	44,690

tion should be developed in this well it will open up the entire Sacramento Valley for exploration. The Corning anticline, a large slightly asymmetric fold some 10 miles long and 3 to 5 miles wide, is clearly defined in surface outcrops. The axis of the structure strikes almost due north and south. This structure has been shot with a seismograph and closure between 1,000 and 1,500 feet is estimated in the Cretaceous. The maximum dip recorded on the west is 20 degrees; on the east 10 degrees, with 15 degrees and 7 degrees being the average. The plunge of the axis on the north is 3 degrees and on the south it is somewhat greater.

This test is rotating ahead at 3,775 feet and is making good progress as drilling is relatively easy as the shales and sands being found are quite similar to the Tertiary sediments in the southern San Joaquin basin. The company has cored continuously from 1,700 feet to the present depth and a complete core record is being preserved. The Cretaceous (Chico) was penetrated at approximately 2,000 feet and from this point to 2,600 feet the section was dominately sandstone. Below 2,600 feet, and between this depth and 3,700 feet, the section is marine organic shales, the lower few hundred feet containing rich fauna-diatons, foraminera, gastropods, fish scales and other fossils. The shales are considered good source rocks for petroleum. Below 3,700 feet, thin sandstone partings and lenses have been appearing. The sandstone partings contain considerable gas and also give a positive acetone cut. There are more than 100,000 acres under lease to oil companies and about 15,000 acres on the Corning anticline are under lease to major operators. The test of the Northern Counties Petroleum Co. is being financed partly by several companies holding acreage on the structure.

The Willett Oil Co. is having considerable trouble with water in its wildcat in San Luis Obispo County and will probably be obliged to make another cement job. This test ran into a water sand at 2,791-2,810 feet, but has logged a promising gas zone above this water sand and another gas zone below it. This water sand has proven rather difficult to handle and may require some careful work as gas pressure in many cases prevents the cement from setting. The Farrel Petroleum Co. has landed and cemented a string of 10-inch pipe in its test in San Luis Obispo County and drilling operations will be resumed within the next 10 days.

Long Beach

Three wells were put on production in the Long Beach Field of Los Angeles basin during the present week, although only one of them was a new well. This was the Shell's No. 7 Marcellus, which was bottomed at 4,225 feet and after being finished with a 4¾-inch liner carrying 735 feet of perforated was brought in pumping 126 bbls. of relatively clean 27.9 gravity oil per day. Russell Coffman succeeded in recompleting his No. 1 Signal after cleaning out the hole to bottom, 4,080 feet, but the well almost got away from the crew. While the hole was being cleaned out, the well blew in flowing at the rate of 1,050 bbls. of clean 26.9 gravity oil per day and after being brought under control it showed an initial of 650 bbls. of very clean 26.8 gravity oil per day.

The Bolsa Chica Oil Co. successfully completed No. 3 Combs after redrilling and deepening the hole to 3,970 feet and this well was returned to production, pumping 380 bbls. of clean 27.6 gravity oil per day from 3,970 feet. There are quite a number of new wells being started in the Long Beach Field and from present indications we may anticipate a continuance of work for another several weeks. During the past month a large number of new locations were staked in this old field and that this work was in earnest is evidenced by the fact that new rigs have been erected by the Century Oil Co., Coastal Oil Co., Dav-Mar Oil Co., Delta Petroleum Co., Derrick Equipment Co., Glen Orr Oil Co., Goodrich Drilling Co., Hillman Oil Co., Justus Oil Co., W. A. Masters, Shelton Oil Co., Signal Hill Development Co., W. B. Towle, Western Development Co. and the World Oil Co. for immediate drilling.

Montebello

The Texas Co., which recently completed a deal with H. T. Coffin covering several hundred acres in the extreme eastern end of the Montebello Field of Los Angeles basin, did not lose any time in getting under way as a new rig is being erected in Section 5-2-11. This location is east of production developed by the Universal Consolidated and the outcome of work will either prove this section to be of considerable importance or just another flash in the pan. The Texas Co. is fully justified in taking a shot at this acreage because it may prove to be very big or of no importance. The importance of the eastern extension of the Montebello Field is still the object of considerable debate as no one can show sufficient justification to either condemn or approve of the acreage. The Texas Co. has moved in under these advantageous conditions and consequently stands to prove up the existence of a new area or define the limits of an area that has puzzled operators for several months. The Texas Co.'s lease is of special importance because the company has several hundred acres located in the area to the north which might or might not be productive. Texas is the one operator that would gain most by proving up a new extension of the Montebello Field and consequently its move is very logical.

The Western Gulf Oil Co. has decided to drill a new wildcat in the Maywood section of Los Angeles County and location for this new test was staked several days ago. The company's new well will be located in Section 16-2-12 about a mile from a 5,453-foot dry hole drilled by the Superior Oil Co. in 1925. The Western Gulf's new test is located sufficiently far enough removed from the Superior's old hole to place it in a different class. The location of the Western Gulf's new wildcat places it about 5 miles northwest of the Santa Fe Springs Field and in an area that operators have long believed to be the location of a potential field. In the Santa Fe Springs Field of Los Angeles basin, the Union Oil Co. added two new wells to its list of producers by completing No. 73 Bell doing 361 bbls. of 33.9 gravity oil per day on gas lift from 5,906 feet and finishing No. 76 Bell, pumping 270 bbls. of relatively clean 32.8 gravity oil per day from 4,463 feet. The Texas Co. succeeded in completing No. 12 Patterson, a new well, and this producer was brought in pumping 171 bbls. of 33.4 gravity oil per day from 4,650 feet. The Severns Drilling Co.'s No. 1 in the Torrance Field of Los Angeles basin was finished several days ago doing 112 bbls. of 18.5 gravity oil per day from 3,700 feet, but this well will not result in any great amount of work as the output is cutting 14.3 per cent water.

Mount Poso

Up in the Mount Poso Field of Kern County, the Shell Oil Co. successfully completed No. 5 Security and this new producer was brought in pumping 1,299 bbls. of relatively clean 22.4 gravity oil per day from 1,721 feet after the hole had been finished with a 6⅝-inch liner, including 221 feet of perforated. No. 5 Security was originally completed a month or two ago but failed to hold up and was accordingly deepened to its present depth. The Union Oil Co. and the Shell are prosecuting drilling operations in this field as both have considerable undrilled acreage that is being penalized. As a result, both companies are geing ahead with the object in view of developing undrilled acreage in order to secure a fair allotment. Neither of these companies is engaged in competitive

(Continued on Page 121)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S. T. R.	Depth	Status—
Macrate, A. N., No. 1 Athens, Los Angeles Co.	18- 3-13	6,462	recmtd. 6,299
Republic Pet., No. 1 Lawndale, Los Angeles Co.	18- 3-14	5,004	suspended
Associated Oil Co., No. 2 Inglewood Deep, Los Angeles Co.	7- 2-14	3,300	181 b.d.
Standard Oil Co., No. 4 Inglewood Deep, Los Angeles Co.	17- 2-14	4,090	cleaning out
Standard Oil Co., No. 5 Inglewood Deep, Los Angeles Co.	17- 2-14	6,284	suspended
Ohio Oil Co., No. 16 Del Rey, Los Angeles Co.	28- 2-15	3,855	rig to pump
Bel-Mar Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	1,093	cmtd. 735
Pacific Drlg. Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	6,474	cleaning out
Stockburger, Roy, No. 1 Del Rey, Los Angeles Co.	27- 2-15	3,513	redrlg. 3,130
Fouri, C. W., No. 3 Del Rey, Los Angeles Co.	27- 2-15	6,393	O.S. drlg.
Ritelube Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	6,375	sd. sh. drlg.
Mathews Pet. Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	5,460	P.B. 25
Birch Royer Oil Co., No. 1 Del Rey, Los Angeles Co.	34- 2-14	1,171	sd. sh. drlg.
Lor-Mar Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	6,374	sd. sh. drlg.
Joyce Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	760	cmtd.
Union Oil Co., No. 8 Del Rey, Los Angeles Co.	27- 2-15	3,991	cmtd. 3,555
Union Oil Co., No. 10 Del Rey, Los Angeles Co.	27- 2-15	5,981	sd. sh. drlg.
Big Ben Oil Co., No. 1 Del Rey, Los Angeles Co.	27- 2-15	6,758	redrlg. 2,670
Doyle Pet .Co., No. 1 Manhattan, Los Angeles Co.	30- 3-14	6,780	reaming
Severns Drlg. Co., No. 1 Torrence, Los Angeles Co.	24- 4-14	3,780	pump 105 b.d.
Western Gulf, No. 1 Maywood, Los Angeles Co.	16- 2-12	....	location
Vance Dev. Co., No. 1 Artesia, Los Angeles Co.	25- 3-12	1,431	cmtd. 1,050
Monarch Oil Corp., No. 1 Topanga, Los Angeles Co.	5- 1-16	....	rig, rained out
The Texas Co., No. 1 Montebello, Los Angeles Co.	5- 2-11	....	bldg. rig
Frontier Oil Co., No. 1 Pico, Los Angeles Co.	7- 2-11	3,140	sd. sh. drlg.
Shively, N. O., No. 1 Puente Hills, Los Angeles Co.	23- 2-10	3,190	wet
Pressel & Tull, No. 1 Puente Hills, Los Angeles Co.	30- 2- 9	4,291	hd. sd. drlg.
International Dev. Co., No. 1 Saugus, Los Angeles Co.	34- 5-16	4,235	cleaning out
Piatt & Collins, No. 1 Costa Mesa, Orange Co.	14- 6-10	2,560	cleaning out
Wilshire Oil Co., No. 1 Newport, Orange Co.	28- 6-10	....	port. rig
Bartholomae Oil Co., No. 2 East Coyote, Orange Co.	22- 3-10	3,626	cmtd. 3,219
Great American Pet. Co., No. 2 East Coyote, Orange Co.	22- 3-10	3,454	deepening
San Diego Pet. Co., No. 1 Chula Vista, San Diego Co.	32-18- 2	6,344	suspended
Stephens, J. T., No. 1 Chula Vista, San Diego Co.	27-18- 2	1,451	hd. sd. drlg.
Edmonds, E. A., No. 1 Trustee, San Diego Co.	29-15- 3	2,421	hd. sd. drlg.
Great Coastal Oil Co., No. 1 Elsinore, San Diego Co.	36- 5- 5	850	suspended

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S. T. R.	Depth	Status—
Shell Oil Co., No. 4 Capitan, Santa Barbara Co.	5- 4-30	2,741	O.S. drlg.
Freeman, M. J., No. 1 Purisima, Santa Barbara Co.	11- 7-33	....	rigged up
Fairview Oil Co., No. 1 Purisima, Santa Barbara Co.	18- 7-34	3,060	suspended
Casmite Co., No. 1 Casmalia, Santa Barbara Co.	13- 9-35	1,200	sd. sh. drlg.
Advance Pet. Co., No. 1 Naples, Santa Barbara Co.	7- 4-29	6,210	sd. sh. drlg.
Barnsdall-Rio. Grande, No. 10-88 Elwood, Santa Barbara	tideland	3,540	reaming
Barnsdall-Rio Grande, No. 2 Elwood, Santa Barbara Co.	15- 4-29	3,951	rd. sd. drlg.
East Elwood Pet. Co., No. 1 Elwood, Santa Barbara Co.	14- 4-29	3,767	P.B. 3,650
Shell Oil Co., No. 1 Goleta, Santa Barbara Co.	20- 4-28	6,508	gas well, idle
West Elwood Oil Co., No. 1 Goleta, Santa Barbara Co.	9- 4-28	3,750	suspended
General Pet. Co., No. 4 Rincon, Ventura Co.	tideland	3,358	flow. 430 b.d.
Las Posas Pet., No. 1 Las Posas, Ventura Co.	22- 3-20	8,116	cleaning out
Union Oil Co., No. 1 Bardsdale, Ventura Co.	12- 3-20	361	sd. sh. drlg.
Goldray Oil Co., No. 1 Rincon, Ventura Co.	20- 4-24	....	port. rig
Oil Ridge Oil Co., No. 1 Ventura, Ventura Co.	1- 4-19	1,533	suspended
El Rancho Oil Co., No. 1 South Mountain, Ventura Co.	9- 3-19	520	sd. sh. drlg.
The Texas Co., No. 128 South Mountain, Ventura Co.	4- 3-19	6,270	sd. sh. drlg.
Bolsa Chica Oil Co., No. 2 Piru, Ventura Co.	4- 4-18	1,895	sd. sh. drlg.
Continental Oil Co., No. 1 Ojai, Ventura Co.	12- 4-23	2,241	may abdn.
High Mesa Oil Co., No. 1 Ojai, Ventura Co.	16- 4-22	....	port. outfit
Prop. Service Corp., No. 1 Lloyd, Ventura Co.	24- 3-23	7,110	prod. test
Continental Oil Co., No. 4 San Miguelito, Ventura Co.	23- 3-24	1,500	sd. sh. drlg.
Standard Oil Co., No. 1 Lost Hills, Kern Co.	2-26-20	3,328	fish. D.P.
Continental Oil Co., No. 1 McDonald, Kern Co.	7-28-20	1,540	sd. sh. drlg.
General Pet., No. 1 South Belridge, Kern Co.	30-28-21	11,377	suspended
Standard Oil Co., No. 1-A North Belridge, Kern Co.	36-27-20	8,565	hd. sh. drlg.
Standard Oil Co., No. 2 North Belridge, Kern Co.	36-27-20	6,470	sd. sh. drlg.
Belridge Oil Co., No. 32-35, North Belridge, Kern Co.	35-27-20	3,392	sd. sh. drlg.
Standard Oil Co., No. 1 Delano, Kern Co.	1-25-23	2,455	gas, shut in
Standard Oil Co., No. 2 Delano, Kern Co.	1-25-23	2,481	cmtd. 2,452
Standard Oil Co., No. 3 Delano, Kern Co.	12-25-23	....	bldg. rig
Standard Oil Co., No. 4 Delano, Kern Co.	34-24-23	....	location
Trico Oil & Gas Co., No. 1 Alpaugh, Kern Co.	3-25-23	2,525	gas well
Trico Oil & Gas Co., No. 3 Alpaugh, Kings Co.	36-24-22	4,176	sd. sh. drlg.
Trico Oil & Gas Co., No. 4 Alpaugh, Kern Co.	3-25-23	....	rigging up
Associated, No. 1 Kern Front, Kern Co.	23-28-27	....	rigging up
Kern River Oilfields, No. 2 Kern Front, Kern Co.	25-28-27	....	rigging up
Golden Bear Oil Co., No. 1 Kern Front, Kern Co.	32-27-27	3,530	sd. sh. drlg.
Hancock Oil Co., No. 6 Mountain View, Kern Co.	14-30-28	3,781	sd. sh. drlg.
Hancock Oil Co., No. 7 Mountain View, Kern Co.	14-30-28	....	bldg. rig
Shell Oil Co., No. 1 Mountain View, Kern Co.	32-30-29	5,594	sd. sh. drlg.
C. C. M. Oil Co., No. 1 Mountain View, Kern Co.	11-30-28	320	sd. sh. drlg.
Union Oil Co., No. 5 Mountain View, Kern Co.	15-30-28	5,685	P.B. 5,612
Union Oil Co., No. 6 Mountain View, Kern Co.	9-30-28	7,300	sd. sh. drlg.
General Petroleum, No. 3 Mountain View, Kern Co.	14-30-28	5,560	flow. 2,750 b.d.
Vesta Pet. Co., No. 1 Mountain View, Kern Co.	19-30-29	2,916	sd. sh. drlg.
Mohawk Oil Co., No. 10 Mountain View, Kern Co.	30-30-29	....	rigging up
Hogan Pet., No. 7 Mountain View, Kern Co.	32-30-29	3,755	sd. sh. drlg.
Hogan Pet., No. 8 Mountain View, Kern Co.	29-30-29	5,779	sd. sh. drlg.
Jergins Trust, No. 5 Mountain View, Kern Co.	24-30-28	5,000	sd. sh. drlg.
Standard Oil Co., No. 7 Mountain View, Kern Co.	13-30-28	....	bldg. rig
Ohio Oil Co., No. 1 Mountain View, Kern Co.	33-30-29	5,999	suspended
Mountain View Oil Co., No. 1 Mountain View, Kern Co.	25-30-28	5,650	O.S. drlg.
Jergins Trust, No. 5 Edison, Kern Co.	14-30-29	1,600	will test
Jergins Trust, No. 6 Edison, Kern Co.	13-30-29	3,576	hd. sd. drlg.
Shell Oil Co., No. 5 Edison, Kern Co.	21-30-29	4,580	br. sh. drlg.
Shell Oil Co., No. 6 Edison, Kern Co.	14-30-29	3,159	P.B. 2,979
Major Oil Co., No. 1 Edison, Kern Co.	18-30-29	316	sd. drlg.
Chaulk Oil Co., No. 1 Edison, Kern Co.	5-30-29	3,876	cmtd.
Nelco Oil Co., No. 1 Edison, Kern Co.	5-30-29	....	rig, suspended
Mohawk Oil Co., No. 1 Edison, Kern Co.	3-30-29	2,991	sd. sh. drlg.
General Pet., No. 4 Edison, Kern Co.	14-30-29	2,551	schist
General Pet., No. 5 Edison, Kern Co.	15-30-29	....	rig, suspended
Petroleum Drilling Co., No. 1 Edison, Kern Co.	22-29-29	1,055	dry, abd.
Appling, C. E., No. 1 Edison, Kern Co.	4-30-29	2,352	sd. sh. drlg.
Signal Oil & Gas Co., No. 1 Edison, Kern Co.	31-29-30	2,258	suspended
Signal Oil & Gas Co., No. 2 Edison, Kern Co.	31-29-30	497	bailing
Signal Oil & Gas Co., No. 3 Edison, Kern Co.	36-29-29	520	cmtd.
General Pet., No. 1 Arvin, Kern Co.	1-32-29	1,060	sd. sh. drlg.
Tejon Ridge Oil Co., No. 1 Comanche, Kern Co.	23-32-29	1,654	suspended
Hall-Baker Co., No. 1 Arvin, Kern Co.	16-31-30	1,276	C.P. 1,210
Sea Cliff Oil Co., No. 1 Greenfield, Kern Co.	7-31-28	5,142	sd. sh. drlg.
Standard Oil Co., No. 1 Semi-Tropic, Kern Co.	8-27-22	3,200	gas, shut in
Standard Oil Co., No. 2 Semi-Tropic, Kern Co.	5-27-23	....	location
Shell Oil Co., No. 1 Buena Vista, Kern Co.	9-32-25	5,673	hd. sh. drlg.
Reserve Oil & Gas Co., No. 1 Tejon, Kern Co.	2-10-19	3,708	suspended
Reserve Oil & Gas Co., No. 2 Tejon, Kern Co.	12-10-19	2,034	suspended
Badger Oil Co., No. 1 Tejon, Kern Co.	31-11-19	6,248	suspended
Standard Oil Co., No. 1 Coalinga, Fresno Co.	13-20-14	....	rigging up
Wellington Oil Co., No. 1 Coalinga, Fresno Co.	14-20-14	780	sd. sh. drlg.
Milham Expl. Co., No. 1 Ora Loma, Fresno Co.	12-12-11	1,015	cmtd.
Union Oil Co., No. 1 Lillis-Kettleman, Fresno Co.	24-21-16	10,944	redrlg. 7,251
K.N.D.A., No. 56 Kettleman, Kings Co.	8-22-16	10,154	redrlg. 9,960
Standard, No. 2 Kettleman Middle, Kings Co.	29-23-19	5,500	sd. sh. drlg.
Continental Oil Co., No. 1 Kettleman-South, Kern Co.	7-25-20	5,287	hd. sh. drlg.
Farrel Pet., well No. 1, San Luis Obispo Co.	18-31-12	1,610	cmtd.
Willett Oil Co., No. 1 Cholame, San Luis Obispo Co.	10-25-15	3,687	cleaning out
Kings River Oil Pool, well No. 1, Tulare Co.	29-16-22	2,161	sd. sh. drlg.
Schuster, C. R., No. 1 Tulare, Tulare Co.	27-22-23	....	rig, suspended
Kabella Oil Corp., No. 1 Terra Bella, Tulare Co.	12-23-27	460	sd. sh. drlg.
Commonwealth Consd. Gas Co., No. 1 Tulare Lake, Kings	21-22-20	2,490	gas well
Commonwealth Consd. Gas Co., No. 2 Tulare Lake, Kings	21-22-20	....	rig, suspended
General Pet., No. 1 Devil's Den, Kings Co.	20-24-18	1,284	br. sh. drlg.
Buttes Oilfields Co., No. 2 Marysville, Sutter Co.	35-16- 1	7,013	suspended
Amerada Pet., No. 1 F.L.D., San Joaquin Co.	15- 2- 5	2,000	hd. sh. drlg.
Pure Oil Co., No. 1 Chowchilla, Madera Co.	7-10-14	8,402	gas well, idle
Northern Counties Pet., No. 1 Tehama, Tehama Co.	25-24- 3	3,776	gr. sd. drlg.
The Texas Co., No. 1 Petrolia, Humboldt Co.	1- 3- 2	5,540	sd. sh. drlg.
Shell Oil Co., No. 1 Branch, Monterey Co.	34-24-10	....	rigging up

New Mexico State Lease Sale Brings High Bids; Colorado Ratifies the Interstate Oil Compact

By TOLBERT R. INGRAM
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Apr. 22.—Auction sale of leases on state land at Santa Fe, N. Mex., resulted in high bids aggregating $29,411 for 26,990 acres. Lea County pools ran 1,502,076 bbls. of crude in March. Nine completions were reported in Lea County, four in the Cooper Pool and one each in Jal and Eunice Pools. Two new locations were reported in the Jal area, one a wildcat 2 miles east of production. R. H. Henderson and others' No. 1 Russell-Steel, west of the Lea Pool, and Humble Oil & Refining Co.'s No. 1 Saunders, San Simion district, were plugged and abandoned. Eddy County had two new locations. H. F. Wilcox Oil & Gas Co. is reported preparing to test a block in Quay County. One new operation was reported in San Juan County.

The Colorado legislature ratified the interstate oil compact. Stanolind Oil & Gas Co. spotted a new Sundance well in the Iles Field. The McElmo Canon wildcat in Montezuma County, is waiting for casing with 1,000 feet of fluid in the hole.

Ohio Oil Co.'s deep test on the Diamond Dome in Carbon County, Wyoming, was dry and abandoned. This company released a new location on the Byron Dome in Big Horn County. Mid-American Oil Co.'s discovery on Sheep Creek, in Fremont County, pumped 12 bbls. in 45 minutes.

Two completions and three locations were reported in the Cut Bank Field, in Glacier County, Montana. The best completion was Kately & Kaup's No. 1 Drumheller, which swabbed and flowed 215 bbls. first 24 hours.

NEW MEXICO

All of 25 tracts of land offered for lease at auction by Frank Veasely, commissioner of public lands, at Santa Fe, on April 10 were bid in with the exception of one tract. The most active bidding was for tracts in the Caprock area in western Lea County, northwest of the Hobbs Pool. High bids aggregated $29,411.88 on a total of 26,990 acres.

Tracts offered, acreage in same and high bids were as follows:

Tract 1, 919 acres in Townships 15 and 16 east, Range 30, 31 and 32 east, Ed W. Owen, San Antonio, $249.

Tract 2, 872 acres in Townships 22, 24, 25 and 26 south, Ranges 32 and 33 east, Shell Petroleum Corp., $305.

Tract 3, 4,366 acres in Townships 10, 11, 12 and 13 south, Ranges 32, 33, 34, 35, 36 and 37 east, Phillips Petroleum Co., $3,512.78.

Tract 4, 3,154 acres in Townships 13s-35 and 13s-37e, Shell Petroleum Corp., $6,624.39.

Tract 5, 2,401 acres in Sections 19, 20, 29 and 30-16s-33e, Ed W. Owen, $625.

Tract 6, 2,200 acres in Sections 21, 22, 27 and 28-16s-33, Empire Gas & Fuel Co., $1,342.

Tract 7, 1,760 acres in Sections 25, 35 and 36-16s-33, Empire Gas & Fuel Co., $1,408.

Tract 8, 560 acres in Section 32-17s-30, William Spurck, Los Angeles, Calif.

Tract 9, 440 acres in Section 36-17s-31, and Section 32-17s-32, William Spurck, $110.

Tract 10, 200 acres in Sections 21 and 36-20s-28, A. N. Etz, Roswell, $256.

Tract 11, 400 acres in Sections 2, 16, 21 and 28-20s-28, R. S. Magruder, El Paso, $105.

Tract 12, 400 acres in Sections 2, 16, 20 and 21-20s-28, R. S. Magruder, $105.

Tract 13, 640 acres in Section 36-17s-32, R. A. Shugart, Artesia, $256.

Tract 14, 1,080 acres in Sections 1, 2, 3 and 4-17s-33, William Spurck, $270.21.

Tract 15, 441 acres in Section 6-17s-33, Rolph Gallinger, Hollywood, Calif., $110.

Tract 16, 320 acres in Section 32-17s-33, Union Oil & Mining Co., $108.

Tract 17, 320 acres in Sections 10 and 16-17s-34, Humble Oil & Refining Co., $1,200.

Tract 18, 645 acres in Sections 2 and 3-17s-34, Empire Gas & Fuel Co., $1,064.58.

Tract 19, 3,738 acres in Townships 17 and 18 south, Range 34e, Phillips Petroleum Co., $6,766.38.

Tract 20, 600 acres in Sections 2, 3, 4 and 5-17s-36, Ed W. Owen, $1,962.

Tract 21, 480 acres in Sections 6, 7 and 8-17s-36, Texas Co., $561.80.

Tract 22, 240 acres in Sections 12, 13 and 25-17s-36, Neil H. Wills, Roswell, $300.

Tract 23, 400 acres in Section 29-17s-36, Ohio Oil Co., $820.

Tract 24, 440 acres in Section 35-17s-36, Neil H. Wills, $1,210.

Pipe Line Runs

Pipe line runs from Lea County pools in March, in barrels, were as follows:

Hobbs	985,262
Jal	110,007
Lea	41,292
Cooper	155,712
Eunice	209,203
North Lea	600
Total	1,502,076

Lea and Eddy Counties

Drilling activity in Lea and Eddy Counties is showing a steady increase with 77 operations, including locations, and excluding nine completions listed this week, are about on a parity with the number of operations years ago when the Hobbs Pool was undergoing its maximum development. The present activity includes a larger number of wildcats than usual.

Cooper Area

Four completions and one location abandoned were reported in the Cooper Pool.

Phillips Petroleum Co.'s No. 13 Woolworth, C SW NW Section 26-24-36, was completed at 3,468 feet from pay at 3,410-65 feet and made 862½ bbls. first six hours through 2½-inch tubing at 3,464 feet. The 6⅝-inch was set at 3,420 feet, elevation 3,320 feet. Same company's No. 14 Woolworth, C NW SW Section 26-24-36, was completed at 3,464 feet and pay at 3,415-64 feet and averaged 75½ bbls. an hour for five hours through 2½-inch tubing at 3,448 feet. The 7-inch was cemented at 3,438 feet, elevation 3,316 feet.

Empire Gas & Fuel Co.'s No. 2 Everett, C SE SW Section 35-24-36, was completed at 3,435 feet after plugging back from 3,492 feet. The pay was at 3,415-35 feet and it made 30 bbls. an hour, 30 per cent basic sediment and water, with 500,000 feet of gas. This was after treating with 1,000 gallons of acid. Elevation is 3,267 feet. Before plugging back and acidizing it flowed 100 bbls. of oil and 150 bbls. of water daily. This completion makes 13 producers in a straight line 40-acre units running north and south, a distance of 3 miles. The fourth completion was Empire's No. 3 Everett, C NW SW Section 35-24-36, at 3,508 feet, from pay at 3,480-3,508 feet. After treating with 1,000 gallons, it made 28 bbls. an hour through 3-inch at 3,495 feet, with 500,000 feet of gas. The 7-inch is at 3,405 feet, elevation 3,272 feet.

The location abandoned is Simms Oil Co.'s No. 1 Coats, C SW NE Section 10-24-36, at the north end of the pool, a south offset to Humble's No. 1 Coats, the gas well which had a blowout several months ago and is still being worked on.

Texas Co.'s No. 6 Ogg, C SW SE Section 35-24-36, an east offset to Empire's No. 2 Everett, a completion this week, is a near completion and looks like a large well. It was drilled to 3,390 feet and in a drill stem test at 3,350-90 feet, made 123 bbls. in one hour with 2,128,000 feet of gas. The 7-inch was cemented at 3,350 feet with 150 sacks. Same company's No. 1-B Ogg, C SE SE Section 34-24-36, set 9⅝-inch at 1,442 feet with 1,000 sacks and is drilling at 2,145 feet in anhydrite, and its No. 2-B Ogg, C SE NE Section 34-24-36, is waiting after setting 9⅝-inch on bottom at 1,348 feet with 1,000 sacks. Same company's No. 3-B Ogg, C NE NE Section 34-24-36, is still a location.

Continental Oil Co.'s No. 23-A-2 Gates, C NW NW Section 23-24-36, has rig up, and its No. 26-A-1 Gates, C SW SW Section 26-24-36, has cellar and pits dug.

Stanolind Oil & Gas Co.'s No. 4 Meyers, C NE SW Section 22-24-36, an edge well on the west side, which has been fighting water trouble and testing for more than a month, is shut down for orders at 3,620 feet. Last test showed 1,200 bbls. of fluid daily, 97 per cent water. Elevation is 3,353 feet.

Empire Gas & Fuel Co.'s No. 4 Everett, C SW SW Section 35-24-36, has cellar and pits completed. Simms Oil Co.'s No. 1 Woolworth, C SE NE Section 35-24-36, is setting whipstock at 3,008 feet to drill by two drill stems. Total depth is 3,406 feet. Amerada Petroleum Corp.'s No. 1 Isabel, C SE NE Section 15-24-36, is drilling plug after cementing 9⅝-inch at 2,800 feet with 500 sacks. General Crude Oil Co.'s No. 1 Woolworth, C NW SE Section 26-24-36, began spudding April 4, set 15½-inch at 200 feet with 200 sacks, and is drilling at 355 feet in red beds. Humble Oil & Refining Co.'s No. 1 Coats, C NW NE Section 10-24-36, into which 300 bbls. of water per hour is being pumped from No. 2 Coats, the relief well, is trying to loosen drill stem and parted 7-inch. Total depth is 3,555 feet. Phillips Petroleum Co.'s No. 15 Woolworth, C SE NE Section 27-24-36, was drilled to 3,468 feet in lime and in a drill stem test at 3,400-68 feet, showed for 50 bbls. an hour with 1,000,000 feet of gas. The 7-inch was cemented at 3,399 feet with 400 sacks and it is waiting to complete.

Amos G. Carter and others' No. 1 Mattix, C SE NW Section 3-24-37, northeast of the Cooper Pool, a wildcat, began spudding April 3, set 15½-inch at 51 feet and is drilling at 365 feet in red beds.

Eunice Area

One completion was reported in the Eunice Pool, Gypsy Oil Co.'s No. 4 Bell-Ramsey, C NW NW Section 9-21-36, which proves up one 40-acre unit on the northeastern side. It was completed at 3,880 feet and flowed 110 bbls. in four hours through 2-inch at 3,878 feet with 500,000 feet of gas. The 4¾-inch was set at 3,728 feet, elevation 3,571 feet.

Continental Oil Co.'s No. 9-B-3 Meyers, C SE NW Section 9-21-36, has cellar and pits dug, and its No. 8-B-2 Meyers, C NE NW Section 8-21-36, is drilling

March Deliveries to Canadian Refineries Are Showing a Very Slight Increase

By VICTOR LAURISTON
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Apr. 20.—Deliveires to the Calgary refineries from the Turner Valley Field in March totaled 80,957 bbls., compared with 77,492 bbls. in February and 80,734 bbls. in January. The March deliveries to Imperial Oil Refineries, Ltd., totaled 71,182 bbls., including 63,227 bbls. of discolored naphtha. Deliveries to Bell Refining Co. for March totaled 9,775 bbls.

In the North Turner Valley Field, Royalite Oil Co.'s No. 26, LSD 5, Section 23-20-3w5, got the Madison limestone at 4,895 feet and cemented casing in the lime at 4,910 feet. It offsets Model Oils' No. 1, some 800 feet to the southeast. Model's No. 1, which has a good light crude production in the Madison at 5,905 feet, got the lime at 5,800 feet, indicating a sharp rise in the formations at Royalite's No. 26 location. The Royalite well will start drilling into production early next week.

South Turner Valley

In Section 21-18-2w5. South Turner Valley, Union-Freehold Oil Corp.'s No. 1, LSD 8, got the lime at 5,506 feet and is cemented at 5,610 feet. It is backing off a string of drill pipe before going deeper. North West Royalties' No. 1, LSD 5, is shut down at 3,300 feet.

In Section 28-18-2w5, Publix Oil & Gas Co.'s No. 1, LSD 8, is 622 feet in the lime at 5,520 feet, and testing production. It is a small producer, and will likely be deepened or shot. Renfrew Royalties' No. 1 Morris & Goodfellow, LSD 3, is deepening below 4,500 feet after running 10-inch casing to 4,400 feet. British Dominion Oil & Development Corp.'s No. 4, LSD 6, is in the lower formation at 5,350 feet and waiting for casing. It got the Home sand at 5,230 feet with considerable gas.

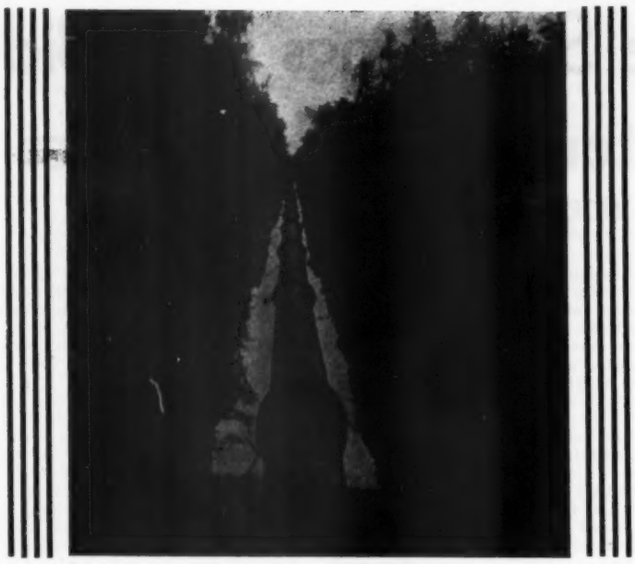
On the east side, Livingston Syndicate's No. 1, LSD 5, Section 34-18-2w5, is below 3,410 feet. Negotiations are under way for completion of Nolan-Hungerford Royalties' No. 1, standing at 3,257 feet.

Mercury Oils' No. 6, LSD 12, Section 4-19-2w5, will likely be completed this summer. It has been standing at 2,771 feet. Location is south of Mercury's No. 1 in LSD 13, which was a very large producer several years ago.

Imperial Oil Operations

Annual reports of Imperial Oil, Ltd., show that in 1934 its subsidiary and affiliated companies in the Turner Valley Field produced 717,501 bbls. of crude oil and naphtha, in addition to which 253,142 bbls. were purchased from other producers. Restriction of output and

(Continued on Page 112)



Green crews laid this bottle-tight line of Monocast Doublex Simplex Centifugal Pipe in flooded trenches through mucky Louisiana swamps at a rate of approximately 224 feet (14 lengths) per hour—including jointing, lowering into the trench, and backfilling. Mono-Cast Doublex Simplex Centrifugal Pipe has proved to be the answer to difficult construction problems throughout the United States.

● For details write American Cast Iron Pipe Co., Birmingham, Ala.

Fitts Field
And
Coal County
Oil
Leases
Royalties
Production
Drilling Blocks
Appraisals
Charles J. Hagerling
Aldridge Hotel
Ada, Oklahoma
or
719-721 Petroleum Bldg.
Oklahoma City

at 3,405 feet. Its No. 9-B-2 Meyers, C SE NW Section 9-21-36, is a near completion at 3,825 feet, total depth, in sandy lime, and is flowing 50 bbls. an hour with 3,500,000 feet of gas through 2½-inch at 3,823 feet. The pay is at 3,754-3,825 feet and testing is still in progress. Continental's No. 30-A-2 Lockhart, C NE NE Section 30-21-36, has cellar and pits dug, and its No. 20-C-3 State, C SE NW Section 20-21-36, set 5½-inch at 3,810 feet, 30 feet off bottom, with 300 sacks, and is waiting. Its No. 18-2-2 Meyers, C NW SE Section 18-21-36, ran 5½-inch and is drilling at 3,810 feet in lime. Its No. 20-C-4 State, C SE SW Section 20-21-36, is straightening crooked hole after plugging back from 2,952 feet to 2,500 feet.

Humble Oil & Refining Co.'s No. 3-B State, C NW NE Section 29-21-36, set 9⅝-inch at 1,260 feet with 600 sacks and is drilling at 1,736 feet in salt. Skelly Oil Co.'s No. 2-B State, C SW NW Section 16-21-36, is drilling at 3,578 feet in lime, and Tide Water Oil Co.'s No. 4 State-Foster, C NE NE Section 8-21-36, is drilling at 3,725 feet in lime. Amerada Petroleum Corp.'s No. 1 Houston, C SE NE Section 7-21-36, is building rig and Atlantic Oil Producing Co.'s No. 1-E State, C NE SW Section 5-21-36, is rigging up rotary.

Ohio Oil Co.'s No. 3 State-McDonald, C NE SW Section 16-22-36, has rig up and Rowan Drilling Co.'s No. 1 Elliott, C NE SW Section 17-22-37, 3 miles east of Ohio's No. 2 State-McDonald, is rigging up rotary.

Monument Area

Amerada Petroleum Corp.'s No. 1-F State, C SW SW Section 36-19-36, north offset to the discovery, began spudding April 3, set 12½-inch at 170 feet with 100 sacks, and is drilling at 840 feet in red beds.

Jal Area

One completion and two new locations of more than ordinary interest were reported in the Jal area. The completion was Trinity Drilling Co.'s No. 1 Sholes, C NE NE Section 24-25-36, which proves up one 40-acre unit east of production. It was drilled to 3,274 feet and flowed 11 bbls. an hour through 2½-inch tubing at 3,274 feet with 5,000,000 feet of gas. The pay was at 3,258-74 feet, with heavy gas pressure at the top. Gas packer on tubing was set at 2,260 feet. This well is on a farm-out from Continental Oil Co., Trinity Drilling Co. having the E half NE of the Sholes tract.

One of the locations, Gypsy Oil Co.'s No. 1 Arnott, C NE NW Section 2-25-35, is 1½ miles north of Continental's No. 1 Wells, nearest producer in the Jal Pool, and half a mile east of Phillips Petroleum Co.'s No. 1 Worth, completed recently and pointing to the Cooper and Jal Pools being one continuous field. The Gypsy location also is a south offset to Empire's No. 2 Everett, a completion the past week in the Cooper Pool.

The second location is Jeffries Oil Co.'s No. 1 Carlson, C NW SE Section 27-25-37, 2 miles east of Pueblo Oil Co.'s No. 1 Crosby, completed several years ago as a wildcat. The Carlson permit in this section formerly was held by Magnolia Petroleum Co. No tests have been drilled between this location and Pueblo company's gas well.

Texas Co.'s No. 1 Parker, C SW SW Section 29-26-37, most southerly well in Lea County and 1 mile from the Texas line, is testing at 3,161 feet in lime. It had gas at 3,030-31 feet and oil at 3,073-78 feet, estimated at 5 bbls. of oil and 500,000 feet of gas a day. The 7-inch was set at 3,011 feet, elevation 2,952 feet.

Hammond, Inc.'s No. 1-B Sholes, SE cor. NW Section 13-25-36, had a gas show at 3,106-28 feet and is drilling in lime at 3,230 feet, and its No. 2-B Sholes, NE cor. NW Section 13-25-36, is drilling at 2,250 feet in salt and anhydrite. Southern Petroleum Exploration Co.'s No. 1-B Ascarate is testing at 3,269 feet. R. H. Henderson and others' No. 1 Langley, C SE SE Section 8-25-37, a wildcat 2½ miles east of production, is rigging up rotary at 2,815 feet, total depth. Two strings of cable tools are in the hole and the well is making 2,500,000 feet of gas a day past the tools. Amerada Petroleum Corp.'s No. 1 Dyer, C SW NE Section 31-25-37, has rig up and is moving in materials.

Two operations carried last week as Continental Oil Co. locations on the Wells permit in Section 12-25-36, will be drilled by Byrd-Frost, Inc. These are No. 1-A Wells, SE cor. NW Section 12, spudding with machine, and No. 2-A Wells, SW cor. NE Section 12, location. These formerly were Continental's No. 12-A-3 wells and No. 12-A-4 Wells. The Byrd-Frost interests have the NW NW, S half NW and SW NE of the section.

Hobbs Area

Noble & Co.'s No. 3-C State, NE NW SW Section 24-18-37, at the northwest edge of the Hobbs development, last week reported flowing 150 bbls. in 30 minutes after acidizing twice, is standing after being retreated with 6,000 gallons. Shell Petroleum Corp.'s No. 1 Turner, SW cor. NE Section 34-18-38, is preparing to test at a total depth of 4,220 feet after setting 6⅝-inch at 4,065 feet with 350 sacks. Continental Oil Co.'s No. 3 Grimes, SW NW SE Section 28-18-38, is drilling at 3,159 feet in lime, and Gypsy Oil Co.'s No. 4 Graham-State, C NW NE Section 24-18-37, is building rig. Capitan Oil Co.'s No. 2 Turner, SW SE Section 34-18-38, began spudding April 6, set 12½-inch at 350 feet with 150 sacks and is drilling at 350 feet in red beds.

National Securities Oil Co.'s No. 1 Linam, NE SE SW Section 33-18-37, southwest of the Hobbs Pool, is shut down for orders at 4,500 feet in lime with 3,500 feet of water in the hole.

Lea Area

R. H. Henderson and others' No. 1 Russell-Steele, C NE NW Section 24-20-33, west of the Lea Pool, proved a failure and was abandoned at 3,590 feet. It had a hole full of sulphur water at 3,575-85 feet. Elevation is 3,627 feet. It is 1½ miles west of McDonald-Jewett's No. 1, Section 18-20-34, completed as a 60-bbl. well in 1929. It is still on production and is now owned by Empire Gas & Fuel Co. No offsets have been drilled around the discovery.

Anderson & Prichard's No. 1 Fisher, C SE NE Section 8-20-35, is drilling at 890 feet in red beds, and Texas Co.'s No. 1 Cole, C NE NE Section 35-19-33, is drilling at 3,148 feet in lime.

San Simion Area

Humble Oil & Refining Co.'s No. 1 Saunders, C NE NE Section 4-22-34, a wildcat northwest of the Cooper Pool and southwest of the Eunice Pool, was abandoned at 4,140 feet. It had a hole full of sulphur water at 4,132-40 feet. Elevation is 3,641 feet. It had no important shows.

Maljamar Area

Maljamar Oil & Gas Co.'s No. 1 Miller, C NW SW Section 23-17-32, is drilling at 2,990 feet in lime.

Nadine Area

Repollo Oil Co.'s No. 1 Arnold, SW NW SE Section 11-20-38, south of Hobbs Pool, is drilling at 3,493 feet in anhydrite.

Eddy County

Getty Oil Co.'s No. 7 Dooley, SW cor. NW Section 24-20-29, Getty Pool, is drilling at 3,156 feet in lime. Dooley and others' No. 1 Commerce Trust Co., NW NE SW Section 8-20-27, is spudding at 46 feet in sand.

One new location was reported in the Maljamar area, W. A. Nicholas' No. 1 Johnson, C NW NE Section 35-16-31, which has rig up. Premier Petroleum Co.'s No. 1-E Dexter, C NW NE Section 20-17-30, is drilling at 1,415 feet in anhydrite, and Grayburg Oil Co.'s No. 6 Burch, C SE NE Section 19-17-30, set 7-inch at 2,700 feet and is drilling at 2,980 feet in lime.

One new location was reported in the Artesia area, Wilson and others' No. 1

State, C N half NE SE Section 32-17-28, which is rigging up machine. R. D. Compton and others' No. 6 Mann, NW SW NE Section 4-18-27, set 10-inch on bottom at 480 feet, in red beds, and is drilling. Red Lake Oil Co.'s No. 4 State, NW cor. SW Section 22-17-28, set 8¼-inch at 495 feet and is drilling at 664 feet in anhydrite. Fred Brainard's No. 1 Brainard, NW NE Section 2-17-28, is drilling at 1,235 feet in anhydrite, and Tignor, Etz and Keyes' No. 1 State, C NE NW Section 15-17-28, had a show of oil and gas at 1,450-73 feet and is drilling at 1,555 feet.

Barnsdall Oil Corp.'s No. 2 Dodd, C NE SE Section 22-17-29, Jackson area, set 10-inch at 278 feet and is drilling at 740 feet in anhydrite. Coronada Exploration Co.'s No. 1 Anderson, C NE NW Section 13-20-23, Seven Rivers district, is drilling up a half-joint of 8¼-inch at 1,135 feet. Stovall & Marshall's No. 2 Rose, C NE SW Section 28-24-27, Pecos River district, began spudding April 6 and is drilling at 214 feet in anhydrite and lime. George Etz and others' No. 1 State, C NE NW Section 36-20-28, Getty district, is spudding.

Quay County

H. F. Wilcox Oil & Gas Co. is reported to have made a location on a 40,000-acre block in the Blanco Creek district, near the town of Forest, in No. 1 Gurley, SE SW SE Section 32-7n-32, on a high worked out by Charles Caudill with the aid of a magnetometer. The block was assembled by A. L. Gurley and Mr. Wilcox, Henry C. Burns, his assistant, and Clyde Callam, driller, are expected at the location shortly.

San Juan County

Continental Oil Co.'s No. 43, NW SE NW Section 12-29-19, Rattlesnake Pool, a first report, is spudding.

COLORADO

The Colorado legislature adopted Senate joint resolution No. 18, by Senator Hudson, ratifying the interstate oil compact adopted at the Dallas meeting in February. It authorizes the governor to appoint a delegate to represent the State in the operation of same. Governor Ed C. Johnson signed the resolution, but has not yet named the delegate. Warwick M. Downing, of Denver, represented the governor at the Dallas meeting and signed the supplementary agreement to recommend to the respective governors and legislatures the ratification of the compact. While Colorado's production at the present time is not sufficiently large to be an important factor, those most active in seeking ratification pointed out that the big leasing campaign in eastern Colorado may shortly change the situation and it is well for the State to be prepared in the event a large field is discovered.

Montezuma County

McElmo Oil Co.'s No. 1 West, NE NW NE Section 3-36-17w, McElmo Canon, which last week was reported showing some gas and 700 feet of oil through 400 feet of cavings at a total depth of 3,131 feet, in the upper Pennsylvanian, is still shut down for control head and casing. The fluid at last reports was standing about 1,000 feet in the hole, an undetermined part water. The gas, at first estimated at 250,000 feet a day, apparently has been killed by the fluid and cavings in the hole. The operator has decided to run a string of 4½-inch before drilling any deeper.

Adams County

Riddle Petroleum Co.'s No. 1 Baxter, C SW Section 2-3s-66, Derby district, has moved a machine over water well drilled to 900 feet and is deepening it to the Milliken at around 1,200 feet in hopes of obtaining a larger supply. The deep test is standing fully rigged except for mudhog pumps which are being moved in from Oklahoma.

Boulder County

Leslie R. Steele and others' No. 1 Maxwell, SW NE NW Section 24-1n-71, west of Boulder, has cleaned up fishing job and is making new hole at 370 feet.

Lincoln County

Consolidated Smelting & Metals Co.'s No. 1 Hancock, NE cor. SW Section 7-17-52, Haswell district, is installing new equipment at 1,200 feet, total depth, and will resume in about a week. It is not yet in the Dakota.

Park County

South Park Oil Co.'s No. 1 State, SE cor. SW Section 16-11-75, Hartsel district, had a show of oil at 1,415 feet in the Pierre shale and is preparing to underream 10-inch from 890 feet to bottom to shut off a small quantity of water at around 1,000 feet.

Moffat County

Stanolind Oil & Gas Co.'s No. 28-X Parkinson, NE SW SW Section 22-4n-92, Iles Dome, is drilling in the top of the objective Sundance at 3,294 feet and will be an early completion. It topped the Dakota at 2,768 feet and the Morrison at 3,203 feet. A new location was released, the company's No. 16-SD Shaw, SE NW NW Section 27-4n-92, which will go to the Sundance. Same company's No. 4-SD Shaw, NE NW NE Section 27-4n-92, completed in 1928 at 3,426 feet for 300 bbls. initial, 3 feet in the Sundance, is pulling tubing to drill deeper.

Prowers County

Trojan Oil & Gas Co.'s No. 1 Lotus Oil, NW NE NE Section 15-23-46, Lamar district, is drilling at 5,190 feet in sandy lime.

WYOMING

Albany County

Drilling has been resumed on the Quealy Dome in California Co.'s No. 1 Holst, NE SE SE Section 13-17-77, discovery well, temporarily completed last fall in the Muddy at 3,146-75 feet, the latter total depth. It is making new hole at 3,193 feet with the Dakota and Lakota and possibly the Sundance as the next objectives. It made 60 bbls. a day initial on the pump from the Muddy sand.

Big Horn County

One new operation was reported on the Byron Dome, Ohio Oil Co.'s No. 1 Robert Till, C SE SW Section 24-56-97, which is building rig to go to the gas sand in the Frontier at 2,200 feet. Ohio Oil Co.'s No. 2 Sidon Canal, C SW SW Section 24-56-97, cemented 15½-inch at 35 feet, 10-inch at 935 feet, and is preparing to resume. Peay Oil Co.'s No. 1 Denio, Tract 43-C, Section 15-55-97, has cleaned up fishing job and is resuming at 3,200 feet. Taylor Oil Co.'s No. 1 Hoskins, SE SE Section 25-56-97, which lost the drill stem last fall at 5,275 feet, total depth, is gradually clearing the hole and all but 10 stands are now out. It will plug back to 4,200 feet to straighten. Hole was bottomed close to the top of the objective when the drill pipe dropped.

California Exploration Co.'s No. 1 Government, C SW SW Section 4-54-94, Spence Dome, is drilling at 1,200 feet and getting close to the objective in the Madison. Peter Evanoff and others' No. 1 McAllister, Lot 40, Section 2-55-97, South Garland, has rig up and is moving in tools.

Carbon County

Ohio Oil Co.'s No. 1 Sid Morris, C NW SE Section 6-20-77, a deep test to the Tensleep on the Diamond Dome, was abandoned at 7,360 feet, total depth. It had water in the Tensleep. It plugged back to the Muddy at 5,120-74 feet and tested a gas show, but it was not commercial. It cut the Shannon at 1,980-2,240 feet.

Ohio Oil Co.'s No. 1 Kyle, NE SE NE Section 26-21-79, Medicine Bow district, which showed for 36,000,000 feet of gas a day in a drill stem test at 5,151-5,206 feet, is drilling out plug after cementing 7⅝-inch at 5,159 feet. This is a joint operation with California Co.

Earl W. Reeder, Inc.'s No. 1 Whitford, SW SE SE Section 24-20-84, Overland Dome, after swedging out and cementing collapsed pipe at 2,383 feet, was unable to run the bailer below that point and again is milling. The 10-inch was cemented on bottom at 3,595 feet.

Ohio Oil Co.'s No. 10 Harrison & Cooper, NE NW SW Section 35-20-78, an old well drilling deeper to test the Sundance, is making new hole at 2,774 feet. Old total depth was 2,734 feet.

Converse County

Chadron-Osage Oil Co.'s No. 1 Jebel, SE cor. NE Section 17-32-69, Shawnee

RESERVE STRENGTH

Fig. 879 Jenkins Extra Heavy Iron Body Gate, Double Disc Parallel Seat.

—makes ordinary duty easy for a Jenkins

Strength is emphasized in making Jenkins Iron Body Gate Valves. Many superior features are provided to build-up strength...to make a "Jenkins" capable of handling ordinary duty with an ease that means longer valve life and less maintenance. This great reserve strength also enables a "Jenkins" to carry-on, even if extraordinary strains are encountered.

Before you place your next order, ask for full details about Jenkins design and construction. There are features of excellence that deserve your consideration, whether you use Solid Wedge or Double Disc Parallel Seat Valves.

JENKINS BROS., 80 White St., New York, N.Y.; 510 Main St., Bridgeport, Conn.; 524 Atlantic Ave., Boston; 133 No. Seventh St., Philadelphia; 822 Washington Blvd., Chicago, Ill.; JENKINS BROS., Limited Montreal; London

Jenkins Valves

BRONZE—IRON—STEEL SINCE 1864

SEEP CUPS

200,000 LEATHER CUPS IN STOCK!

Our large stock covers all standard and many special sizes of leather cups. We ship your specifications at once.

SEEP CUPS are of highest grade, tough and long-wearing. STAR CUPS are lower in price.

STAR CUPS

Also a complete line of leather specialties

C. L. & W. W. AUER

Established 1880 Corry, Pa.

district, was completed for 73,000 feet of gas a day at 410 feet and has been connected up with No. 1 State, SW cor. Section 16-32-69, a deep test, shut down at 150 feet.

Fremont County

Mid-American Oil Co.'s No. 2 Government, C NE SW Section 14-28-92, Sheep Creek, which had oil in the Embar at 2,175-2,260 feet, pumped 12 bbls. in 45 minutes and shut down to pull rods and adjust equipment.

Niobrara County

Ohio Oil Co.'s No. 2 Rohlff, C NE SE Section 32-36-65, Lance Creek, discovery well in the lower Sundance, which blew out fittings two weeks ago, is again on production and flowing 5,000 bbls. a day. Tankage will be filled and the well will be beaned down to market requirements. The company has three 35,000-bbl. tanks in the field and has been moving oil for the past few months at the rate of 1,000 bbls. a day to fill a contract with the Sinclair refinery at Parco. The cause of the Rohlff well going wild was a break in the 7⅝-inch at 175 feet. The oil going through the seam blew out the bradenhead on the 7 and 12½-inch. The well was killed, the damaged joint replaced and a new bradenhead installed.

Ohio company's No. 6 Lamb, near C SE SE Section 32-36-65, is drilling at 983 feet. Continental Oil Co.'s No. 1 Apex-3, SW NE SW Section 34-36-65, is still cleaning out at 3,533 feet.

Lance Creek will have considerable activity the coming summer, due to the important discovery in the lower Sundance, but the program of the developing companies has not yet been announced, waiting largely on a decision by Administrator Ickes in regard to spacing of wells. The development plan submitted a year ago provided for one well to a 40-acre unit. That was before the lower Sundance had been tested. Two of the principal operators are said to be desirous of increasing the number to at least two wells to the 40-acre unit, while a third company favors the present plan. Ohio Oil Co., Continental Oil Co. and Argo Oil Co. are the principal owners of leases. Both Continental and Argo are expected to drill. Argo will drill at least one well on the Elliott tract in Section 5-36-65, but is waiting to make the location until the spacing matter is definitely settled.

Hot Springs County

Atlantic & Pacific Oil Co., which last year acquired the state lease on Section 36-43-94, comprising practically all the productive acreage in the East Warm Springs Field, is cleaning out and repairing the old wells on the lease. There are 19 wells completed in the Embar at around 900 feet, but they have been shut in for years. The company has been very successful in operating black oil wells in the Dallas-Derby Field in Fremont County where they are electrically equipped. A dehydrating plant will be built in the field and the same method used as in the Dallas-Derby operation. A pipe line to Thermopolis probably will be built. The field lies east of the West Warm Springs Pool, owned by the Shaffer interests.

Park County

Texas Co.'s No. 3 Sonners, NE NW Section 29-51-100, Oregon Basin, is drilling at 1,627 feet.

Washakie County

Wyoming Oil & Refining Co.'s No. 1 Frison, NW SW NW Section 14-48-91, Hidden Dome, is drilling at 1,356 feet.

Weston County

Osage Trust Co.'s No. 26 State, C SE NE Section 14-46-64, Osage Field, found the pay at 1,603-10 feet and will shoot and complete immediately. Irene Eaton's No. 14 Government, SW NE SW Section 30-46-63, completed last month at 1,440 feet for 20 bbls. on the pump without a shot, was shot the past week with 40 quarts and responded by flowing while cleaning out. It has not yet been gauged.

Salt Creek Deal Closed

The deal reported last fall as under way whereby Sinclair-Wyoming Oil Co. would purchase the leases, absorption plant and camp of Ohio Oil Co. in Salt Creek, has been closed and effective as of April 1. There are 53 stripper wells on the leases with a production of around 400 bbls. daily.

MONTANA

Glacier County

A heavy snow storm in the Cut Bank Field had little effect on the spring drilling campaign getting under way and two wells were completed and three locations reported. The best well was Kately & Kaup's No. 1 Drumheller-Ward, Lot 1, Section 10-34-6w, which swabbed and flowed 215 bbls. first 24 hours from the pay at 2,890-2,918 feet. Total depth is 2,940 feet. The other completion was Consolidated Gas Co.'s No. 3 Tribal, NE NW NW Section 34-35-6w, which swabbed 90 bbls. first 24 hours from the pay at 2,960-75 feet. Total depth is 2,-980 feet.

New locations follow: Texas Co.'s No. 3 Schlag, W half SE SE Section 26-35-6w, moving in rotary equipment; Texas Co.'s No. 1 Sherburne Merc. Co., C NW SW Section 10-34-6w, moving in rotary equipment; Montana Power Gas Co.'s No. 1 Bonnet, C SE NW Section 4-32-5w, location.

Askins' No. 1 Askins, Lot 24, Block 33, Section 12-33-6w, is drilling at 2,630 feet. Consolidated Gas Co.'s No. 6 Tribal, C SW SW Section 10-34-6w, is rigging up. Dakota-Montana Oil Co.'s No. 2 Winkler, C NE NW Section 26-35-6w, topped the Colorado at 510 feet and cemented the 10-inch at 570 feet with 75 sacks. Gardner-Smith's No. 1 Tweedy, NE NE Section 36-33-6w, is drilling at 450 feet. Indian Oil Co.'s No. 2 Winkler, W half SW SW Section 28-35-6w, is sidetracking pipe at 1,090 feet. Montana Headlight Oil Co.'s No. 5 Yunck, NW NE NW Section 1-34-6w, is drilling at 1,390 feet, and Montana Power Gas Co.'s No. 1 Highland Unit, NW SE NW Section 27-36-5w, is rigging up. Montana Power's No. 1 Lookoff, C SW SE Section 28-33-5w, is rigging up, and its No. 1 Miller, C NW NW Section 28-33-5w, is spudding. Par Oil Co.'s No. 4 Haines, C SE SE Section 2-34-6w, is drilling at 1,440 feet. Bruce Radigan's No. 1 Connolly, NW SW NW Section 7-33-5w, is drilling at 2,025 feet. Santa Rita Oil & Gas Co.'s No. 1 Ritchie, C NW SW Section 5-33-5w, is spudding at 200 feet, and its No. 5 Whetstone, NE SE Section 22-35-6w, is rigging up. Steel Creek Producers, Inc.'s No. 2 Carman, C SW NW Section 19-34-5w, is rigging up. Texas Co.'s No. 6 Hinkle, NE cor. Section 2-34-6w, set the 7-inch at 2,750 feet with 60 sacks and is bailing to test.

Carbon County

Ohio Oil Co.'s No. 15 Montana Industrial, C NE NE Section 11-7s-21, Dry Creek, is rigging up rotary.

Fergus County

Button Butte Oil & Gas Co.'s No. 1 Woodward, SEE cor. SW Section 20-14-24, Button Butte district, is still trying to shut off water to test show of oil at 2,752-3,006 feet in the Madison.

Liberty County

J. H. Hamilton and others' No. 1 Northern Farms, C NE SW Section 10-37-5e, Flat Coulee, is drilling at 2,468 feet.

Phillips County

Guy Norman's No. 1 Pewitt, NE NW NE Section 20-24-24, Guinn district, is drilling at 411 feet, and Grant Smith and others' No. 4 Phillips, E half NW SW Section 2-24-23, Bow Creek, is moving in materials after spudding.

Toole County

A. E. Crumley's No. 5 Shaw, NW SE SW Section 35-36-2w, Kevin-Sunburst Field, is spudding at 50 feet, and Monopeg Oils, Ltd.'s No. 3 Dipple, SW NW Section 28-35-1w, is fishing for tools at 1,355 feet. Texas Co.'s No. 5 Swears, C SW Section 9-35-2w, set 10-inch at 175 feet with 20 sacks and is drilling at 225 feet.

Canadian Fields

(Continued from Page 109)

harship to small producers was avoided by further extending the area in which products made from Turner Valley naphtha displaced products made from imported crudes. At the end of 1934 affiliates of Imperial Oil, Ltd., principally the Royalite Oil Co., controlled 74 oil and gas wells in western Canada compared with 59 wells at the end of 1933.

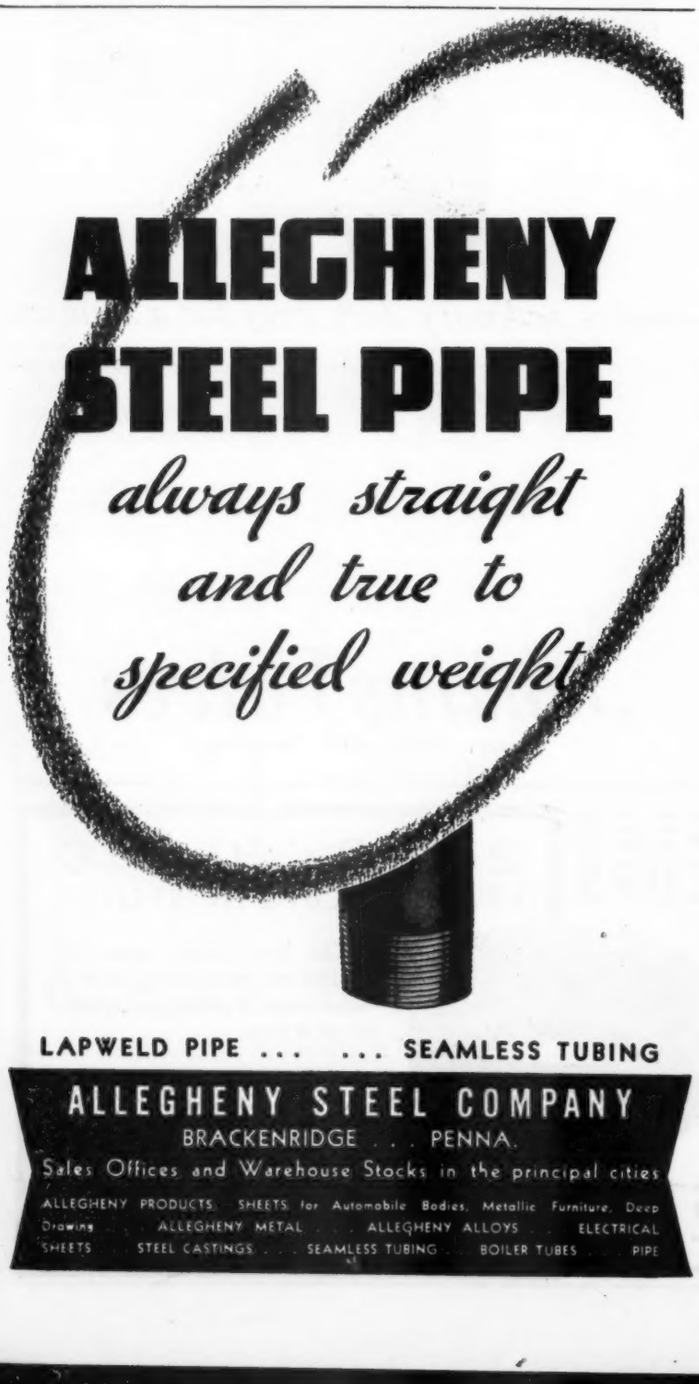
Imperial Oil, Ltd., in its 1934 financial statement has written off $4,900,000 representing all expenditures made prior to January 1 of that year on exploration of properties in western Canada found to be nonproductive of oil. This covers operations outside the Turner Valley Field. This year a geodetic survey will be undertaken in new areas in the Canadian west in preparation for a further development campaign. It is understood this survey will be devoted largely to previously untested areas in Saskatchewan and western Manitoba.

Alberta Foothills

On the Highwood-Sinclair structure south of Turner Valley, Maple Leaf (formerly Canadian) Royalties' No. 1 Banner, LSD 6, Section 34-17-3w5, is running 3⅝-inch casing preparing to deepening from 1,018 feet. The Benton-Blairmore contact was met at 411 feet, the Stockmen sand at 678 feet and the McDougall-Segur sand at 890 feet with a strong gas showing. In cleaning out preparatory to running casing a good show of high grade paraffin base crude, about 45 gravity, was found in the caving formation at 1,018 feet. The formations are from 1,500 to 2,500 feet higher than in the Turner Valley Field.

In the Forest Reserve area west of Olds, Hunter Valley Oil Co.'s No. 1 McLaren, LSD 12, Section 13-31-10w5, is cleaning out preparatory to deepening from 4,814 feet, after the winter shutdown.

On the High River-Aldersyde structure, east of Turner Valley, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-28w4, is deepening from 6,270 feet with a small hole and considerable shows of gas and oil. Farther south and west on the same structure, Globe Royalties' No. 1 is moving derrick to location in LSD 3, Section 2-20-29w4.


ALLEGHENY
STEEL PIPE
always straight
and true to
specified weight
LAPWELD PIPE ... ... SEAMLESS TUBING
ALLEGHENY STEEL COMPANY
BRACKENRIDGE . . . PENNA.
Sales Offices and Warehouse Stocks in the principal cities
ALLEGHENY PRODUCTS SHEETS for Automobile Bodies, Metallic Furniture, Deep Drawing ALLEGHENY METAL ALLEGHENY ALLOYS ELECTRICAL SHEETS STEEL CASTINGS SEAMLESS TUBING BOILER TUBES PIPE

TECHNICAL QUESTIONS ANSWERED

By Charles K. Francis, Ph. D., Technical Editor

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible.

Inquiries must be signed but only the given initials will be printed. The source of the question is considered to be confidential.

Questions requiring a discussion of patents, the use of intricate formulas, extended computations, or cost estimates cannot be considered.

When the matter is of general interest the reply will be published within a reasonable time.

Nonflammable and Nonexplosive Mixtures of Cleaning Naphtha

We are seeking a liquid, suitable for cleaning expensive garments and draperies that will not be explosive and which will not easily ignite. If there is any way to treat a good petroleum naphtha to make it nonexplosive and noncombustible we would like to know about it.—W. R. L.

Carbon tetrachloride, an excellent solvent for oils, fats, greases, and many stains, has been used for many years as the extinguishing liquid in portable fire extinguishers. This is a carbon compound, a chlorinated hydrocarbon, which is nonflammable and nonexplosive and not forming an explosive mixture with air, extensively used in commercial dry cleaning establishments, because in addition to its solvent action, it reduces the fire and explosion hazards of the dry cleaning business. When it is desired to increase the solvent range of the cleaning liquid at a reduced cost, it is the practice to blend petroleum naphtha with the carbon tetrachloride. Also, the fire hazard of petroleum naphtha is eliminated when properly mixed with carbon tetrachloride.

The several petroleum naphthas marketed vary as to flashpoint and initial boiling point, so the quantity of carbon tetrachloride required to render a mixture safe cannot be determined until the properties of the particular naphtha have been determined. The usual varnish maker's naphtha may be blended to make a safe mixture in the proportions of 45 parts of naphtha to 55 parts of carbon tetrachloride.

The physical constants of carbon tetrachloride are shown in the table:

PROPERTIES OF CARBON TETRACHLORIDE

Formula	CCl_4
Molecular weight	153.83
Specific gravity	1.5836
Pounds per gallon	13.2
Melting point °F.	—9
Boiling point °F.	170
Heat of vaporization (B.t.u.)	83.7
Specific heat of liquid at 170° F.	0.216

A very pure fully refined carbon tetrachloride should be used for dry cleaning. Even very small quantities of foreign substances, such as sulphur or alcohol, must be avoided. Many of the solvents which would appear to be satisfactory for blending with carbon tetrachloride cannot be used because of their action on the tetrachloride. While tin cans and galvanized iron drums are suitable for carbon tetrachloride alone, both tin and zinc are attacked when small traces of alcohol are present.

G. W. Jones and R. E. Kennedy have investigated various mixtures of hydrocarbons and carbon tetrachloride. The material following is from their report, U. S. Bureau of Mines, I.C. No. 6805, (1934).

Tests were made to determine the ability of carbon tetrachloride-hydrocarbon mixtures to form flammable mixtures when completely vaporized and mixed with air. A summary of such tests with pentane, hexane, heptane, octane, one sample of solvent naphtha, and motor gasoline shows that, with the exception of the gasoline, there must be 66.7 to 70 per cent carbon tetrachloride by volume present in the mixture to prevent propagation of flame. For the gasoline tested there must be at least 58 per cent of carbon tetrachloride in the final mixture to prevent propagation of flame. Less carbon tetrachloride is required for gasoline than for the pure hydrocarbons tested because about 30 per cent of the gasoline had a boiling point above 150° C., and consisted of hydrocarbons having a molecular weight higher than octane. These hydrocarbons have low vapor pressures, and it was impossible to vaporize them completely in the explosion tube. The results (with the exception of gasoline) represent conditions in which the mixtures were vaporized completely so that the proportions in the original mixtures were the same as in the vapor arising from the mixture.

The following table gives a general summary of the results obtained by the different tests, showing the amounts of carbon tetrachloride that must be present in final mixture by volume to render such mixtures nonflammable and incapable of supporting combustion, per cent.

Hydrocarbon—	Explosion-tube tests. Amount of CCl_4 that must be present to prevent flammability with air.	Open-dish tests. The amount of CCl_4 that must be present to prevent burning in open containers.	Wick tests. Amount of CCl_4 that must be present to prevent burning on wicks.
Pentane	66.7	80.0	70.0
Hexane	70.0	63.5	66.7
Heptane	70.0	50.0	58.0
Octane	66.7	50.0	66.7
Naphtha	70.0	50.0	58.0
Gasoline	58.0	50.0	58.0

It is concluded from this U. S. Bureau of Mines investigation that to eliminate the fire and explosion hazards of hydrocarbons ranging from hexane to octane, the final mixtures must contain at least 70 per cent by volume of carbon tetrachloride. Gasoline and naphtha, since different brands may vary in composition, should contain 70 per cent of carbon tetrachloride by volume in the final mixture. Pentane-carbon tetrachloride mixtures must contain at least 80 per cent carbon tetrachloride to prevent burning in an open vessel.

Acid Residue of Gasoline and Naphtha Due to Poor Refining

A proposed contract for gasoline contains a clause covering a negative acidity test of the residue after distillation. What is the meaning of this and how is the test made?—A.W.T.

Purchasers frequently require that gasoline and naphtha shall leave no residue in the flask, as tested for volatility range by the standard distillation method, which will give an acid reaction. These products should be free from acid and any traces that may be detected are generally considered to be due to improper or careless refining.

There are several treating methods applied to the purification of gasoline, which produce acid, usually hydrochloric, as a product of the chemical action. If adequate means for the control of this phase of the treatment are not understood, or are overlooked, the product will frequently give the acid reaction under the conditions of the distillation test. Another possibility is the careless introduction of sulphuric acid, but this is rare because very little gasoline or naphtha is now subjected to treatment with sulphuric acid. In both cases it is the lack of a thorough washing with water after the alkali wash to neutralize any traces of acid that may exist in the liquid.

The acidity test may be made by washing out the residue from the flask with distilled water into a test tube. Shake the tube, remove the aqueous layer by means of a pipette to a clean tube. Add one drop of one per cent methyl orange solution. A pink or red color indicates acid.

Tendency to Emulsify Related to Stock and Refining

Is there any method of improving demulsibility on light turbine oils that fail to meet a perfect test? Do you think that the trouble lies in the fact that some oils pass because of their crude source or method of refining? There seems to be some indication that the more highly refined an oil is the poorer the demulsibility test.—H.J.Z.

The Demulsibility Test, Federal Specification VV-L-791, Methods of Sampling and Testing Lubricants and Liquid Fuels, Method 320 and the several modifications, provides that the oil shall be paddled with water, sodium hydroxide solution and salt solution, and the separation recorded after standing 30 minutes. With the addition of any mineral substance to the oil-water mixture it is natural to expect a more permanent emulsion to be formed than when the mixture is made with distilled water. A permanent emulsion must then be due to the chemical combination or to a peculiar physical condition. The lubricating oils intended for use in steam turbines should not produce anything but a rapid separating emulsion. That several oils may be made from the same stock, some of which will show poor demulsibility and others good, suggests that sometimes purification has not been carried far enough in the refinery.

While treating may not have been, in some instances thorough enough to act on the chemical structure and permit easy removal of the products by the subsequent washing, the modern processes produce an oil free from this objection. When the oil is suitable for making lubricating oil there should be no difficulty in producing a finished product having a high resistance to emulsification, but if the stock is not suitable and the refining has not been thorough it is difficult to correct an oil after it leaves the refinery. Sometimes a thorough washing with soft water and filtering through fuller's earth will help. The better practice is to select another oil.

Poor demulsibility is not the result of thorough refining. The most extensive treatment is that employed for the manufacture of the white oils, medicinal oils, which are commonly very resistant to emulsification.

Historical Dates That Fix the Beginnings of Oil Industry

It will be appreciated if you will give us the location with dates of the first well drilled for oil, the first company to engage in the business, and any other related historical dates.—C.M.H.

The Library Bulletin of Abstracts, 8, 80, May 17, 1933, gave a table from the Origins of the Petroleum Industry. I. Ganitchi. Moniteur du Petrole roumain, Nov. 1, 1932, P. 869. Annales de l'Office National des Combustibles Liquides, Jan.-Feb., 1933, P. 165, which is reproduced.

First artificial wells, before the seventh century A.D., Sechuan, China.

First artificial wells in the Caucasus, before the eighteenth century, Balakhany, Baku, by unknown Persians.

First boring for petroleum in the United States, 1808, Great Kanawha Valley, Charleston, W. Va., by Ruffner Brothers.

First petroleum well pumped in the United States, 1859, Titusville, Pa., by Col. Edwin Drake.

First boring in Europe, 1858, Wietze, Hannover, by the State of Hannover.

First gusher, 1861, "Empire" boring, Pennsylvania.

First gusher in the Caucasus, 1867, Kudako Kuban, by Col. Novosiltzev.

First petroleum company, 1854, Pennsylvania, by Pennsylvania Rock Oil Co.

First experiments in distillation of crude petroleum, 1810-1817-1823, Drohohycz and Baku, by Hecker and Anlis, Dubinin.

First distillation plant, 1848, Derbyshire, by James Young.

First fractional distillation, 1854, New Haven, Conn., by Benj. Silliman.

First lighting plant using a petroleum distillate, 1852, Hospital of Lemberg.

First petroleum refinery, 1857, Ploesti, Mehedintzeanu.

First refinery in the Caucasus, 1851, Surakhany, Cocorev, Eichler.

In 1814 a well bored for water at Duck Creek, Ohio, extending down 475 feet, produced crude oil which sold at 50 cents a gallon. A boring made at Fredonia, New York, in 1821, yielded sufficient gas at a depth of 27 feet to light the town with 30 lamps.

Summary of Operations in All Fields for March, 1935

SUMMARY OF ALL FIELDS
Wells Completed

	Comp.	Prod.	Dry	Gas
Pennsylvania Grade	191	448	13	39
Lima	7	33	2	2
Central Ohio	20	63	9	8
Indiana	15	85	2	9
Illinois	2	70	1	0
Kentucky	9	538	0	1
Michigan	18	550	6	5
Kansas	95	83,154	28	5
Oklahoma	114	267,155	38	8
North Central Texas	222	12,040	96	5
West Texas	70	49,403	13	1
Texas Panhandle	62	32,885	4	9
East Central Texas	16	240	11	0
East Texas	459	24,397	11	1
Gulf Coast, Texas	70	28,365	25	3
Southwest Texas	107	19,722	33	12
North Louisiana	23	475	12	3
Gulf Coast, Louisiana	29	15,133	7	1
Arkansas	7	1,152	3	1
Alabama	1	0	1	0
Mississippi	1	0	1	0
Montana	5	463	0	0
Colorado	1	1,440	0	0
New Mexico	32	34,171	1	1
Wyoming	5	460	1	1
Total March	1,581	572,442	324	105
Total February	1,391	236,997	302	138
Difference	190	335,445	22	33

SUMMARY OF ALL FIELDS
Rigs and Wells Drilling

	Rigs	Dig.	Ttl.
Pennsylvania Grade	74	187	261
Lima	4	34	38
Central Ohio	38	121	159
Indiana	0	37	37
Illinois	0	9	9
Kentucky	6	11	17
Michigan	118	135	253
Kansas	50	222	272
Oklahoma	83	454	537
North Central Texas	76	143	219
West Texas	45	124	169
Texas Panhandle	54	93	147
East Central Texas	18	26	44
East Texas	84	226	310
East Texas gas field	4	14	18
Gulf Coast, Texas	34	118	152
Southwest Texas	42	159	201
North Louisiana	21	66	87
Gulf Coast, Louisiana	14	72	86
Arkansas	11	47	58
Alabama	1	3	4
Florida	1	0	1
Mississippi	3	13	16
Montana	11	45	56
Wyoming	7	66	73
Colorado	2	29	31
New Mexico	32	34,171	7	1
Utah	1	13	14
Total March	816	2,554	3,370
Total February	827	2,670	3,497
Difference	9	116	127

Oklahoma Fields
Summary of Completed Wells

County—	Comp.	Prod.	Dry	Gas
Stephens	6	62	4	2
Carter	1	75	1	0
Marshall	2	18	1	1
Grady	1	120	1	1
Oklahoma	3	30,694	2	0
Osage	35	14,221	5	0
Noble	7	5,642	9	0
Lincoln	1	140	2	0
Okfuskee	2	2,012	0	1
Seminole	11	20,842	2	1
Pontotoc	28	171,726	3	1
Pottawatomie	8	2,887	1	0
Jackson	2	51	6	0
Comanche	2	4	0	0
Jefferson	2	60	0	0
Logan	3	15,601	1	0
Kay	0	0	1	0
Hughes	0	0	2	1
Garfield	0	0	1	0
Murray	0	0	2	0
Kingfisher	0	0	1	0
Payne	0	0	1	0
Coal	0	0	1	0
Total March	114	267,155	38	8
Total February	109	(*)	26	11
Difference	5	.....	12	3

*March production is representative of 24-hour gauges whereas February figure represented only short gauges on wells in flush, or prorated pools.

Rigs and Wells Drilling

County—	Rigs	Dig.	Ttl.
Jackson	1	20	21
Caddo	1	5	6
Grady	0	1	1
Stephens	5	17	22
Carter	0	8	8
Marshall	1	7	8
Comanche	0	7	7
Jefferson	0	3	3
Garvin	0	3	3
Beckham	1	1	2
Cotton	0	1	1
Oklahoma	4	24	28
Kay	0	8	8
Logan	1	17	18
Noble	2	6	8
Pawnee	2	2	4
Osage	24	44	68
Pontotoc	7	56	63
Pottawatomie	2	46	48
Seminole	2	51	53
Lincoln	2	7	9
Okfuskee	3	9	12
Hughes	1	9	10
Alfalfa	0	1	1
Texas	0	1	1
Grant	0	1	1
Tillman	1	1	2
Murray	2	2	4
Coal	1	1	2
Atoka	0	6	6
Pushmataha	0	1	1
McCurtain	1	0	1
Bryan	0	2	2
Harmon	0	1	1
Greer	1	3	3
Kiowa	0	2	2
Washita	1	1	2
Pittsburg	1	3	4
McClain	0	1	1
Cleveland	0	1	1
Canadian	0	1	1
Blaine	0	1	1
Okmulgee	5	16	21
Muskogee	0	8	8
Creek	10	42	52
Payne	0	3	3
Tulsa	0	4	4
Total March	83	454	537
Total February	79	475	554
Difference	4	21	17

Kansas Fields
Summary of Completed Wells

County—	Comp.	Prod.	Dry	Gas
Russell	12	6,239	4	0
Rice	16	13,562	1	0
Reno	28	47,269	3	1
McPherson	11	3,573	1	0
Harvey	3	612	0	0
Butler	3	393	5	0
Sedgwick	8	3,524	5	1
Ellsworth	5	6,829	1	2
Cowley	2	125	0	0
Elk	1	5	1	0
Greenwood	2	172	3	1
Sumner	3	530	1	0
Barton	1	320	0	0
Stafford	0	0	2	0
Ness	0	0	1	0
Total March	95	83,154	28	5
Total February	93	59,141	15	4
Difference	2	24,013	13	1

Rigs and Wells Drilling

County—	Rigs	Dig.	Ttl.
Butler	1	5	6
Chautauqua	0	1	1
Cowley	2	8	10
Ellsworth	4	7	11
Elk	0	4	4
Greenwood	0	10	10
Harvey	1	8	9
Marion	0	3	3
Morris	0	2	2
McPherson	1	18	19
Reno	7	37	44
Rice	7	42	49
Russell	9	36	45
Sedgwick	0	8	8
Sumner	4	4	8
Woodson	0	3	3
Scott	1	0	1
Rooks	1	3	4
Clay	0	2	2
Trego	0	3	3
Ellis	0	1	1
Saline	0	1	1
Osage	0	1	1
Dickinson	1	0	1
Barton	3	8	11
Rush	3	3	6
Ness	0	1	1
Pawnee	1	0	1
Stafford	1	2	3
Barber	2	1	3
Kingman	1	0	1
Total March	50	222	272
Total February	61	199	260
Difference	11	23	12

East Central Texas Fields
Summary of Wells Completed

County—	Comp.	Prod.	Abd.	Gas
Anderson	1	68	1	0
Cherokee	2	0	2	0
Falls	1	0	1	0
Freestone	2	130	1	0
Gregg	207	11,039	4	0
Henderson	1	0	1	0
Hill	1	0	1	0
Limestone	1	0	1	0
McLennan	1	0	1	0
Navarro	1	0	1	0
Nacagdoches	1	0	1	0
Red River	0	0	0	0
Rusk	159	8,352	4	1
Smith	52	3,065	1	0
Upshur	39	1,811	0	0
Van Zandt	6	172	2	0
Total March	475	24,637	22	1
Total February	338	16,193	18	1
Difference	37	8,444	4	0

Summary of Rigs and Wells Drilling

County—	Rgs.	S.D.	Dig.	Ttl.
Anderson	9	0	10	19
Bowie	0	1	0	1
Cherokee	1	4	0	5
Ellis	0	1	0	1
Falls	0	5	0	5
Freestone	1	0	1	2
Gregg	15	1	97	113
Harrison	2	3	1	6
Henderson	1	0	2	3
Hunt	0	2	0	2
Kaufman	0	3	0	3
Limestone	0	2	3	5
McLennan	0	0	3	3
Morris	0	4	1	5
Nacogdoches	1	0	1	2
Navarro	0	5	0	5
Rains	0	1	0	1
Red River	1	0	1	2
Rusk	37	1	75	113
Smith	23	3	26	52
Titus	1	0	0	1
Upshur	8	0	28	36
Van Zandt	2	3	2	7
Wood	0	0	1	1
Total March	102	39	252	393
Total February	131	31	215	377
Difference	29	8	37	16

North Central Texas Fields
Summary of Wells Completed

County—	Comp.	Prod.	Abd.	Gas
Archer	86	4,579	25	0
Baylor	1	250	0	0
Brown	3	25	1	1
Callahan	4	95	2	0
Clay	3	0	3	0
Coleman	2	0	2	0
Comanche	2	25	0	1
Cooke	7	225	5	0
Eastland	3	15	1	1
Jack	12	132	8	1
Montague	7	4,494	1	0
Palo Pinto	3	30	0	1
Shackelford	3	70	1	0
Stephens	1	0	1	0
Throckmorton	6	0	6	0
Wichita	36	747	17	0
Wilbarger	3	8	2	0
Young	40	1,345	21	0
Total March	222	12,040	96	5
Total February	175	9,367	80	2
Difference	47	2,673	16	3

Summary of Rigs and Wells Drilling

County—	Rigs	S.D.	Drlg.	Ttl.
Archer	19	8	43	70
Baylor	0	1	0	1
Brown	1	6	3	10
Callahan	0	0	5	5
Clay	1	0	0	1
Coleman	0	2	6	8
Cooke	4	5	9	18
Denton	0	1	0	1
Eastland	2	5	2	9
Erath	0	2	0	2
Foard	0	0	1	1
Grayson	0	1	0	1
Hardeman	0	3	0	3
Hamilton	0	1	0	1
Jack	2	4	4	10
Lampasas	0	1	0	1
Mills	0	1	1	2
Montague	10	3	4	17
Palo Pinto	0	1	2	3
Parker	0	2	1	3
Shackelford	9	2	10	21
Stephens	0	1	1	2
Tarrant	0	1	0	1
Throckmorton	1	2	2	5
Wichita	5	3	18	26
Wilbarger	0	1	2	3
Wise	1	1	2	4
Young	21	4	27	52
Total March	76	62	143	281
Total February	53	48	172	273
Difference	23	14	29	8

West Texas Fields
Summary of Wells Completed

County—	Comp.	Prod.	Abd.	Gas
Andrews	1	145	0	0
Crane	2	1,829	0	0
Ector	12	2,389	2	0
El Paso	1	0	1	0
Fisher	4	1,804	0	0
Howard	8	1,811	0	0
Jones	3	30	1	0
Loving	2	45	1	0
McCulloch	4	0	3	1
Mitchell	1	0	1	0
Pecos	6	33,975	1	0
Sterling	1	0	1	0
Taylor	1	5	0	0
Upton	3	552	0	0
Ward	17	6,126	1	0
Winkler	4	692	1	0
Total March	70	49,403	13	1
Total February	46	19,211	6	0
Difference	24	30,192	7	1

Summary of Rigs and Wells Drilling

County—	Rigs	S.D.	Drlg.	Ttl.
Andrews	3	3	4	10
Brewster	1	1	3	5
Cochran	1	1	0	2
Coke	0	0	1	1
Crane	3	1	4	8
Crockett	0	1	1	2
Culberson	0	3	1	4
Dawson	0	0	1	1
Ector	4	6	15	25
El Paso	0	1	1	2
Fisher	5	1	3	9
Glasscock	2	3	3	8
Garza	0	0	1	1
Howard	3	4	15	22
Irion	0	0	1	1
Jeff Davis	0	0	1	1
Jones	0	2	11	13
Loving	1	1	1	3
Lynn	0	0	1	1
Martin	0	1	0	1
McCulloch	0	3	2	5
Mitchell	0	2	0	2
Pecos	3	6	4	13
Presidio	0	1	0	1
Reagan	0	0	3	3
Reeves	1	1	1	3
Runnels	0	6	0	6
Schleicher	0	1	1	2
Scurry	0	1	1	2
Stonewall	0	1	0	1
Sutton	0	0	1	1
Taylor	1	1	0	2
Terrell	0	1	0	1
Tom Green	0	0	1	1
Upton	2	1	14	17
Ward	11	13	20	44
Winkler	4	9	8	21
Total March	45	76	124	245
Total February	53	70	110	233
Difference	8	6	14	12

Texas Panhandle
Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Carson	6	916	0	2
Collingsworth	1	0	1	0
Gray	22	6,136	1	1
Hutchinson	7	1,895	0	0
Potter	1	0	0	1
Wheeler	25	23,938	2	4
Total March	62	32,885	4	9
Total February	50	19,205	2	8
Difference	12	13,680	2	1

Summary of Rigs and Wells Drilling

County—	Rigs	S.D.	Drlg.	Ttl.
Carson	3	0	7	10
Childress	1	0	2	3
Cottle	0	0	1	1
Gray	20	4	48	72
Hutchinson	13	13	6	32
Moore	1	3	3	7
Ochiltree	1	0	0	1
Randall	0	1	0	1
Roberts	0	1	1	2
Wheeler	15	11	25	51
Total March	54	33	93	180
Total February	36	29	93	158
Difference	18	4	0	22

Southwest Texas Fields
Summary of Field Operations

Field—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Angelita	0	0	0	0	0	1	1
Barbarcoas	0	0	0	0	0	1	1
Burnel	3	0	0	2	2	1	3
Caesar	4	2,900	2	0	0	0	0
Cedar Creek	0	0	0	0	0	1	1
West Cole	15	4,780	4	1	2	10	12
North Dale	0	0	0	0	0	1	1
Darst Creek	1	250	0	0	1	0	1
Dirks	0	0	0	0	0	1	1
Driscoll	1	320	0	0	0	0	0
Escobas	1	30	0	0	1	1	2
Sam Fordyce	12	2,725	0	0	2	7	9
Gov. Wells	19	4,333	2	1	1	11	12
Grayburg	1	0	1	0	0	0	0
Henne-Winch-Farias	1	0	1	0	0	0	0
Jacobs	2	10	1	0	0	3	3
Jennings	2	165	0	0	0	0	0
Kingsville	1	0	0	1	1	1	2
Laurel	3	0	2	1	0	1	1
Loma Nova	3	2,276	0	0	2	0	2
Los Olmos	0	0	0	0	0	2	2
Lopena	1	0	0	1	0	1	1
Lucas	0	0	0	0	0	1	1
Martinez	1	0	0	1	0	0	0
McNeil	0	0	0	0	0	1	1
Mirando City	0	0	0	0	0	1	1
Moca	0	0	0	0	0	1	1
Mirando Valley	0	0	0	0	0	1	1
North Pettus	1	0	0	1	0	0	0
Rio Grande City	0	0	0	0	1	2	3
Sandia	0	0	0	0	0	1	1
Sarnosa	0	0	0	0	1	0	1
Seeligson	1	0	0	1	0	1	1
Saxet	0	0	0	0	0	1	1
Sinton	1	0	0	1	1	0	1
Two Rivers Ranch	0	0	0	0	0	1	1
West Tuleta	13	1,312	3	0	4	7	11
Von Ormy	1	1	0	0	0	5	5
North Kohler	0	0	0	0	1	1	2
Miscellaneous	19	126	17	0	22	92	114
Total Mar.	107	19,722	33	12	42	159	201
Total Feb.	95	11,332	47	5	38	138	176
Difference	12	8,390	14	7	4	21	25

Gulf Coast Fields
TEXAS

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Anahuac	1	775	0	0	2	0	2
Arriola	2	460	0	0	0	3	3
Barbers Hill	3	2,362	0	0	1	12	13
Batson	1	5,500	0	0	1	1	2
Big Hill	0	0	0	0	0	1	1
Blue Ridge	0	0	0	0	0	1	1
Boling	1	0	1	0	0	1	1
Buckeye	1	0	1	0	0	0	0
Clay Creek	0	0	0	0	0	1	1
Cleveland	1	0	0	1	0	1	1
Colette Creek	0	0	0	0	0	1	1
Conroe	5	2,230	2	0	0	1	1
Damon Mound	1	0	1	0	1	1	2
Danbury	0	0	0	0	0	2	2
Dickinson	1	250	0	0	1	2	3
Esperson	0	0	0	0	0	3	3
Eureka	2	0	2	0	0	1	1
Fannett	1	432	0	0	0	0	0
Goose Creek	0	0	0	0	0	1	1

Greta	1	100	0	0	1	3	3
Hankamer	1	1,200	0	0	2	0	2
Hastings	1	1,848	0	0	0	3	3
High Island	1	372	0	0	0	5	5
Hull	2	325	1	0	0	0	0
Humble	2	100	1	0	0	0	0
Kittrell	2	1,248	0	0	0	3	3
Livingston	0	0	0	0	0	2	2
Louise	1	96	0	0	0	2	2
Manvel	4	1,274	1	0	4	9	13
Mykawa	0	0	0	0	0	2	2
Orchard	1	0	1	0	1	1	2
Pierce Jct.	0	0	0	0	0	3	3
Pledger	0	0	0	0	1	0	1
Port Neches	1	336	0	0	0	2	2
Port Lavaca	0	0	0	0	0	1	1
Raccoon Bend	3	2,102	0	0	0	3	3
Refugio	2	1,008	0	0	5	9	14
Sour Lake	2	10	1	0	0	2	2
South Liberty	1	22	0	0	0	0	0
Sugarland	0	0	0	0	0	1	1
Stratton Ridge	0	0	0	0	1	2	3
Thompson	2	2,400	0	0	0	0	0
Tomball	10	3,353	1	2	1	5	6
Tomoconnor	0	0	0	0	0	2	2
Miscellaneous	13	62	12	0	11	25	36
Total Mar.	70	28,365	25	3	34	118	152
Total Feb.	74	22,661	17	7	42	119	161
Difference	4	5,704	8	4	8	1	9

LOUISIANA
Summary of Field Operations

Field—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Bay Junop	0	0	0	0	0	1	1
Bay St. Elaine	0	0	0	0	0	1	1
Black Bayou	0	0	0	0	2	1	3
Bosco	6	8,921	0	0	0	8	8
Calliou Isl.	0	0	0	0	1	1	2
Calcasieu Lake	0	0	0	0	1	0	1
Cameron Meadows	2	435	0	0	0	1	1
Choctaw	0	0	0	0	0	1	1
Dog Lake	0	0	0	0	0	1	1
Edgerly	1	240	0	0	0	0	0
Four Isle	0	0	0	0	0	1	1
Gillis	1	500	0	0	0	10	10
Gueydan	0	0	0	0	0	1	1
Hackberry	3	875	0	1	2	3	5
Iowa	2	1,526	0	0	0	3	3
Jennings	3	60	2	0	0	1	1
Lake Barre	1	660	0	0	0	2	2
Lake Hermitage	0	0	0	0	0	1	0	1
Lake Washington	0	0	0	0	0	0	1	1
Lake Pelto	0	0	0	0	0	0	1	1
Leesville	3	430	2	0	0	2	3	5
Lockport	3	220	2	0	0	0	0	0
New Iberia	0	0	0	0	0	0	4	4
Port Barre	0	0	0	0	0	0	1	1
Roanoke	2	1,236	0	0	0	1	2	3
Sulphur	1	0	1	0	0	0	2	2
Sweet Lake	0	0	0	0	0	0	1	1
Vinton	1	30	0	0	0	0	1	1
White Castle	0	0	0	0	0	0	2	2
Miscellaneous	0	0	0	0	0	4	18	22
Total Mar.	29	15,133	7	1	14	72	86
Total Feb.	26	10,947	10	0	22	72	94
Difference	3	4,186	3	1	8	0	8

Louisiana Fields
Summary of Field Operations

Parish—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Avoyelles	0	0	0	0	1	1	2
Bienville	0	0	0	0	0	1	1
Bossier	2	0	2	0	2	4	6
Caddo	10	455	2	1	5	21	26
Catahoula	1	0	1	0	0	1	1
Claiborne	0	0	0	0	2	1	3
DeSoto	4	0	3	1	1	10	11
E. Carroll	0	0	0	0	0	1	1
Grant	0	0	0	0	1	0	1
LaSalle	1	0	1	0	0	1	1
Madison	0	0	0	0	0	1	1
Morehouse	0	0	0	0	0	1	1
Natchitoches	0	0	0	0	0	1	1
Ouachita	0	0	0	0	0	1	1
Rapides	0	0	0	0	1	2	3
Red River	0	0	0	0	0	2	2
Sabine	4	20	3	0	5	12	17
Union	1	0	0	0	1	1	2	3
Webster	0	0	0	0	0	0	1	1
Total Mar.	23	475	12	3	21	66	87
Total Feb.	20	462	8	4	29	64	93
Difference	3	13	4	1	8	2	6

Gas production: Caddo, 250,000 feet; DeSoto, 5,000,000 feet; Union, 1,500,000 feet; total, 6,750,000 feet.

Arkansas Fields
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Arkansas	0	0	0	0	0	1	1
Ashley	0	0	0	0	0	1	1
Columbia	0	0	0	0	0	1	1
Hempstead	0	0	0	0	0	1	1
Lafayette	0	0	0	0	1	3	4
Little River	0	0	0	0	0	2	2
Lonoke	0	0	0	0	0	1	1
Miller	0	0	0	0	3	9	12
Ouachita	2	0	2	0	1	6	7
Poinsett	0	0	0	0	0	1	1
St. Francis	0	0	0	0	0	1	1
Sevier	0	0	0	0	0	1	1
Union	5	1,152	1	1	5	18	23
Woodruff	0	0	0	0	1	1	2
Total Mar.	7	1,152	3	1	11	47	58
Total Feb.	15	1,468	9	0	19	45	64
Difference	8	316	6	1	8	2	6

Gas production: Union County, 3,500,000 feet.

East Texas Border Counties
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Cass	0	0	0	0	1	0	1
Harrison	0	0	0	0	0	2	2
Marion	0	0	0	0	0	2	2
Panola	0	0	0	0	3	6	9
Shelby	0	0	0	0	0	4	4
Total Mar.	0	0	0	0	4	14	18
Total Feb.	3	0	3	0	2	11	13
Difference	3	0	3	0	2	3	5

Mississippi Fields
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Amite	0	0	0	0	0	1	1
Boliver	0	0	0	0	0	1	1
Clarke	0	0	0	0	1	1	2
Harrison	0	0	0	0	0	1	1
Hinds	0	0	0	0	1	1	2
Issequena	1	0	1	0	0	0	0
Jones	0	0	0	0	0	1	1
Lauderdale	0	0	0	0	0	1	1
Monroe	0	0	0	0	0	2	2
Scott	0	0	0	0	0	1	1
Simpson	0	0	0	0	1	0	1
Warren	0	0	0	0	0	1	1
Washington	0	0	0	0	0	1	1
Winston	0	0	0	0	0	1	1
Total Mar.	1	0	1	0	3	13	16
Total Feb.	1	0	1	0	3	12	15
Difference	0	0	0	0	0	1	1

Alabama Fields
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Baldwin	1	0	1	0	0	0	0
Covington	0	0	0	0	0	1	1
Houston	0	0	0	0	0	1	1
Lamar	0	0	0	0	0	1	1
Pike	0	0	0	0	1	0	1
Total Mar.	1	0	1	0	1	3	4
Total Feb.	1	0	1	0	1	3	4
Difference	0	0	0	0	0	0	0

Florida
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Walton	0	0	0	0	1	0	1

Rocky Mountain Area

MONTANA
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Carbon	0	0	0	0	0	2	2
Cascade	0	0	0	0	0	2	2
Fergus	0	0	0	0	0	3	3
Glacier	5	463	0	0	8	9	17
Libery	0	0	0	0	0	3	3
Pondera	0	0	0	0	0	2	2
Toole	0	0	0	0	3	13	16
Miscellaneous	0	0	0	0	0	11	11
Total Mar.	5	463	0	0	11	45	56
Total Feb.	4	10	1	2	9	38	47
Difference	1	453	1	2	2	7	9

UTAH
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Total Mar.	0	0	0	0	1	13	14
Total Feb.	0	0	0	0	1	13	14
Difference	0	0	0	0	0	0	0

WYOMING
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Big Horn	1	400	0	0	2	7	9
Carbon	1	0	1	0	1	8	9
Converse	0	0	0	0	0	6	6
Crook	0	0	0	0	0	5	5
Fremont	0	0	0	0	0	3	3
Lincoln	0	0	0	0	0	4	4
Natrona	1	40	0	0	0	1	1
Niobrara	0	0	0	0	1	5	6
Park	1	0	0	1	1	2	4
Sweetwater	0	0	0	0	0	2	2
Sublet	0	0	0	0	0	3	3
Uinta	0	0	0	0	0	6	6
Weston	1	20	0	0	2	7	9
Miscellaneous	0	0	0	0	0	6	6
Total Mar.	5	460	1	1	7	66	73
Total Feb.	0	0	0	0	6	69	75
Difference	5	460	1	1	1	3	2

COLORADO
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Adams	0	0	0	0	1	1	2
Archuleta	0	0	0	0	0	2	2
Grand	0	0	0	0	0	2	2
Huerfano	0	0	0	0	0	2	2
Jackson	0	0	0	0	0	2	2
Larimer	0	0	0	0	0	3	3
Moffat	1	1,440	0	0	1	1	2
Miscellaneous	0	0	0	0	0	16	16
Total Mar.	1	1,440	0	0	2	29	31
Total Feb.	0	0	0	0	2	25	27
Difference	1	1,440	0	0	0	4	4

NEW MEXICO
Summary of Field Operations

County —	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Chaves	1	0	0	1	0	1	1
Eddy	5	246	2	0	1	7	8
Lea	24	33,806	4	0	9	44	53
McKinley	0	0	0	0	2	3	5
San Juan	2	19	1	0	0	13	13
San Miguel	0	0	0	0	0	7	7
Santa Fe	0	0	0	0	0	3	3
Valencia	0	0	0	0	1	3	4
Miscellaneous	0	0	0	0	1	6	7
Total Mar.	32	34,171	7	1	14	87	101
Total Feb.	17	22,433	6	1	18	90	108
Difference	15	11,738	1	0	4	3	7

Eastern Fields
Wells Completed

	Comp.	Prod.	Dry	Gas
Bradford	126	188	0	0
Allegany	3	3	0	0
Venango-Clarion	2	4	0	0
Butler-Armstrong	2	2	0	0
Southwest Pennsylvania	8	5	1	6
Southeast Ohio	21	88	6	5
West Virginia	28	158	6	18
Total March	191	448	13	29
Total February	201	452	17	46
Difference	10	4	4	17

Rigs and Wells Drilling

Field—	Rigs	Dig.	Ttl.
Bradford	21	57	78
Allegany	3	2	5
Venango-Clarion	3	6	9
Butler-Armstrong	4	3	7
Southwest Pennsylvania	6	14	20
Southeast Ohio	17	36	53
West Virginia	20	69	89
Total March	74	187	261
Total February	56	170	233
Difference	18	17	29

Michigan Fields
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Midland	2	150	1	0	15	33	48
Isabella	9	100	3	3	21	29	50
Oceana	0	0	0	0	6	9	15
Huron	0	0	0	0	1	1	2
St. Clair	0	0	0	0	2	0	2
Clinton	0	0	0	0	2	0	2
Clare	0	0	0	0	3	0	3
Kent	0	0	0	0	1	2	3
Emmert	0	0	0	0	1	1	2
Cass	0	0	0	0	6	1	7
Sanilac	0	0	0	0	3	0	3
Newyago	0	0	0	0	0	3	3
Saginaw	1	30	0	0	4	2	6
Livingston	0	0	0	0	0	4	4
Shiawassee	0	0	0	0	1	4	5
Ogemaw	2	270	0	0	28	11	39
Gladwin	0	0	0	0	1	5	6
Hilladale	0	0	0	0	2	0	2
Lenawee	0	0	0	0	1	0	1
LaPeer	0	0	0	0	3	2	5
Bay	0	0	0	0	1	0	1
Roscommon	0	0	0	0	1	1	2
Mason	0	0	0	0	0	1	1
Chippewa	0	0	0	0	1	0	1
Tuscola	1	0	1	0	0	0	1
Mecosta	3	0	1	2	7	9	16
Montcalm	0	0	0	0	3	12	15
Muskegon	0	0	0	0	4	5	9
Total Mar.	18	550	6	5	118	135	253
Total Feb.	26	5,487	4	3	126	149	275
Difference	8	4,937	2	2	8	14	22

Central Ohio Fields
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Ashland	1	0	0	1	1	0	1
Medina	1	0	0	1	1	11	12
Holmes	0	0	0	0	3	5	8
Cuyahoga	1	0	1	0	0	1	1
Lorain	1	0	0	1	0	5	5
Richland	0	0	0	0	0	3	3
Wayne	1	0	1	0	0	2	2
Summitt	1	0	1	0	1	3	4
Fairfield	1	0	1	0	3	2	5
Knox	1	0	1	0	2	5	7
Coshocton	0	0	0	0	2	2	4
Licking	1	0	0	1	4	2	6
Muskingum	1	16	0	0	1	6	7
Athens	1	0	1	0	7	4	11
Belmont	0	0	0	0	1	3	4
Portage	1	0	1	0	0	0	0
Crawford	0	0	0	0	0	1	1
Tuscarawas	0	0	0	0	0	6	6
Trumbull	0	0	0	0	0	1	1
Stark	4	0	1	3	5	14	19
Guernsey	3	47	0	1	3	13	16
Gallia	0	0	0	0	0	5	5
Scioto	0	0	0	0	0	1	1
Pike	0	0	0	0	0	2	2
Carroll	0	0	0	0	0	1	1
Lawrence	0	0	0	0	1	3	4
Meigs	0	0	0	0	2	15	17
Perry	1	0	1	0	1	4	5
Delaware	0	0	0	0	0	1	1
Total Mar.	20	63	9	8	38	121	159
Total Feb.	44	317	12	22	35	116	151
Difference	24	254	3	14	3	5	8

Indiana Fields
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Gibson	1	0	1	0	0	5	5
Pike	3	75	0	0	0	3	3
Knox	6	0	0	6	0	3	3
Sullivan	2	0	0	2	0	1	1
Daviess	1	0	1	0	0	1	1
Decatur	0	0	0	0	0	2	2
Wabash	0	0	0	0	0	1	1
Washington	0	0	0	0	0	2	2
Dubois	0	0	0	0	0	1	1
Lawrence	0	0	0	0	0	1	1
Madison	0	0	0	0	0	1	1
Adams	0	0	0	0	0	1	1
Cass	0	0	0	0	0	1	1
DeKalb	0	0	0	0	0	1	1
Jay	1	10	0	0	0	1	1
Martin	0	0	0	0	0	1	1
Perry	0	0	0	0	0	4	4
Posey	0	0	0	0	0	2	2
Spencer	0	0	0	0	0	3	3
Fountain	0	0	0	0	0	1	1
Harrison	0	0	0	0	0	1	1
Henry	1	0	0	1	0	0	0
Total Mar.	15	85	2	9	0	37	37
Total Feb.	35	110	13	17	6	30	30
Difference	20	25	11	8	0	7	7

Kentucky Fields
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Hancock	5	270	0	1	2	6	8
Ohio	4	268	0	0	4	5	9
Total Mar.	9	538	0	1	6	11	17
Total Feb.	9	270	2	1	2	16	18
Difference	0	268	2	0	4	5	1

Lima Fields
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wood	2	0	1	0	0	4	4
Henry	0	0	0	0	0	2	2
Lucas	0	0	0	0	0	1	1
Allen	1	25	0	0	0	3	3
Auglaize	0	0	0	0	0	4	4
Ottawa	0	0	0	0	0	1	1
Hardin	1	0	0	1	2	1	3
Van Wert	0	0	0	0	0	4	4
Darke	0	0	0	0	0	2	2
Shelby	0	0	0	0	0	1	1
Sandusky	0	0	0	0	0	2	2
Seneca	0	0	0	0	0	3	3
Ottawa	0	0	0	0	0	1	1
Marion	0	0	0	0	0	1	1
Wyandot	3	2	1	1	2	5	7
Total Mar.	7	33	2	2	4	24	28
Total Feb.	7	5	2	4	2	31	33
Difference	0	28	0	2	2	3	5

Illinois Fields
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Clark	0	0	0	0	0	2	2
Parker	1	0	1	0	0	2	2
Crawford	0	0	0	0	0	4	4
Jasper	0	0	0	0	0	1	1
St. Clair	1	70	0	0	0	0	0
Total Mar.	2	70	1	0	0	9	9
Total Feb.	3	257	2	0	0	11	11
Difference	1	187	1	0	0	2	2

Eastern Fields
(Continued from Page 100)

at 1,571 feet on his property in Harvey district.

In Pleasants County, M. C. Martin has made a location on the Pauline Hammett farm in Jefferson district. In McKim district, Howard Hall and others are drilling at 1,050 feet on the Thomas Fleming farm.

In Ritchie County, 1 mile west of Fonzo Post Office in Murphy district and on the Hughes River, Burley W. Barker is spudding in No. 5 on the William P. Barker farm. In this district, W. H. Mosser and others have a location on the G. L. Goff farm. W. R. Hays is drilling in the Injun sand in No. 4 on the Levi Wilson farm. Patton and Wilson Farm Oil Co. are down 1,450 feet in No. 7 on their own property. In Clay district, J. C. Smith and others have a location for No. 4 on the Lewis Hanlon farm. In this district, Richards Farm Oil Co. has a location for No. 7 on the Corley Ball farm. Smith and Hendershot are down 1,080 feet in No. 4 on the Charles Wilcox, Sr. farm. In Grant district, Joseph Elder and others are shut down at 2,000 feet testing the sand on the Isaac M. Jackson farm. Edward Deem is at 1,900 feet in deepening No. 2 on the William Clark farm.

In Roane County, on Frozen Camp Creek in Curtis district, Clyde Campbell and others are drilling on the M. Hart farm at 645 feet, three-quarters of a mile north of the Henderson Williams farm. On Buffalo Creek in this district, D. W. Law and others have a machine on location on the J. D. Lyons farm, 2 miles north of the Riddle lease. On this Creek, same district, K. M. Hunt is drilling on the T. W. Lattimer farm. On Mill Creek, McIntosh & Son have a rig standing on the McIntosh and Norman farm. On the T. J. Murray six-acre farm, K. M. Hunt has a machine located for a test and is drilling on the four-acre plot, same name.

In Wirt County, Peter Silman has moved a machine to a location for a second test on the Peter Silman farm in Clay district. In Burning Springs district, R. C. Waggoner and others are drilling at 400 feet the second test on the James W. Ferree farm. In Wetzel County, C. B. Lewis and others are drilling on the S. O. Adams farm in Proctor district and have reached 675 feet.

THOMAS A. COMBS DIES

Thomas A. Combs, president of the Swiss Oil Corp., Lexington, Ky., died recently.

PERSONAL PARAGRAPHS

G. C. POTTER, Mission, Tex., is now associated with the D. D. Oil Company.

* * *

L. G. MORGAN has recently been made a member of the geological staff of the Vickers Petroleum Company, Wichita, Kans.

* * *

G. H. CORD, production engineer at Fort Worth, Tex., for the Stanolind Oil & Gas Company, has been transferred to Tulsa.

* * *

C. D. WATSON, vice president in charge of engineering for the Carter Oil Company, Tulsa, was confined to his home last week with influenza.

* * *

RUSSELL CONKLING, formerly a geologist with Shell Petroleum Corporation, has formed a partnership with J. L. GREENE, independent operator, at Midland, Tex.

* * *

HARRY W. CLIFFORD is now advertising director of Skelly Oil Company, with headquarters at Kansas City Mo. Previously he directed the Skelgas division promotion work.

* * *

OLIVER H. ATTRIDGE, formerly chief engineer for Lucey Manufacturing Corporation, of Chattanooga, Tenn., has joined the organization of Lucey Products Corporation, as chief engineer.

* * *

E. W. SIEBOLDT, traffic manager for 16 years for Shell Petroleum Corporation, has become manager of railroad sales and traffic director. The promotion moved his office from Chicago to St. Louis.

* * *

L. P. ST. CLAIR, president; STANLEY MORSEHEAD, vice president, and W. B. ROBB, secretary of the Independent Oil Producers Agency, were re-elected to their respective offices at the annual meeting of the agency held in Bakersfield, Calif., recently. Messrs. St. Clair, Morsehead and Robb have been re-elected officers of the agency for more than 25 years. The Independent Oil Producers Agency is the oldest co-operative organization of oil producers in the State of California.

* * *

JACK PIERCE, of Titusville, Pa., is now connected with the Alco Products, Inc., New York.

* * *

E. H. SALRIN, first vice president for the Tide Water Oil Company, with headquarters at New York, has returned from a business trip.

* * *

E. P. NEAL, chief draftsman for Shell Petroleum Corporation, Tulsa, announces the birth of a son, Eugene Wrightsman Neal, April 22.

* * *

JOHN CATLETT, Tulsa oil man, heads the recently appointed state park commission, named to establish a series of state parks in Oklahoma.

* * *

C. R. BARTON, formerly at Tulsa, and now located at New York for the Tide Water Oil Company, was a visitor to the company's offices at Houston, Tex., the past week.

* * *

J. D. EXNER, district petroleum engineer for the Humble Oil & Refining Company, with headquarters in the Andrews district, Texas, has been transferred to Hobbs, N. Mex.

* * *

THOMAS PENNINGTON, junior petroleum engineer for the Humble Oil & Refining Company at Hull, Tex., has been promoted to district petroleum engineer for the same district.

MARC H. LOWRANCE, in the land department of the Sinclair Prairie Oil Company, Fort Worth, Tex., announces arrival of an 8-pound 13-ounce boy on the evening of April 15 at Cook Memorial Hospital.

* * *

A. M. BUTCHER, special representative for the Boston Woven Hose & Rubber Company, has returned to Tulsa after spending two months in California making a special survey of conditions there for his company.

* * *

EMORY M. SKINNER, formerly chief engineer of the Rock Island Refining Company at Duncan, Okla., is now process engineer at the Augusta, Kans., refinery of the White Eagle division of Socony-Vacuum Oil Corporation.

* * *

E. H. GRISWOLD, JR., assistant general superintendent of production of the Continental Oil Company at Fort Worth, Tex., and a former Oklhoman, was called to Peru, Ind., recently by the death of his father, DR. E. H. GRISWOLD, 80 years of age.

* * *

FRANK S. THOMPSON, formerly manager of the General American Tank Car Corporation's office in Tulsa, has been placed in charge of the company's new office in Cleveland, Ohio. R. J. SHARPE, with the company 25 years, succeeds Mr. Thompson in Tulsa.

* * *

K. R. JENSEN, of Jensen Brothers Manufacturing Company, Coffeyville, Kans., is greatly improved from an illness that has had him confined for the past three months. He plans to leave this week for Corpus Christi, Tex., where he will spend a few weeks' vacation.

* * *

JOSEPH C. JONES has associated himself with Sanderson & Porter, engineers, 52 William Street, New York. Mr. Jones was with Ford, Bacon & Davis, Inc., until March 1, and formerly with Thomas E. Murray, Inc., in connection with industrial and public utilities works, and will be similarly engaged with Sanderson & Porter.

E. H. FINCH, who has been in South America for the Venezuelan Petroleum Company, has returned to the New York office, 45 Nassau Street.

* * *

PAUL G. WEIDNER, of Tulsa, head of the natural gas department of the Stanolind Oil & Gas Company, was in Casper, Wyo., several days last week.

* * *

WILLIAM E. DURKEE, formerly with the Purchasing Agents Association of Tulsa, is now in the warehouse and material department of the Gypsy Oil Company at Chase, Kans.

* * *

JOHN G. BARTRAM, geologist for the Rocky Mountain division of the Stanolind Oil & Gas Company, left Casper, Wyo., for the Iles Dome Field in Moffat County, northwestern Colorado.

* * *

JOHN T. BARNETT, of Denver, Colo., president of the Mountain Producers Corporation, is being proposed by UNITED STATES SENATOR ALVA B ADAMS for appointment as United States minister to Canada.

* * *

DR. W. B. EMERY, geologist for the western division of the Ohio Oil Company, returned to his headquarters in Casper, Wyo., after a two weeks' trip in Mexico, where he was carrying out geological research for his company.

* * *

KARL E. NICHOLS, field representative in the Osage-Enid, Oklahoma, area for Skelly Oil Company, and MISS LEONA GRAHAM, secretary to A. L. CASHMAN, superintendent of the land department of Skelly Oil Company, were married Sunday and left for Louisiana on a wedding trip.

* * *

J. O. DENTON, JR., of Dowell Incorporated, is being transferred from the Tulsa office to Shelby, Mont., where he will be district manager. P. E. FITZGERALD is being transferred from Shelby, Mont., to the Tulsa district. C. E. MANGOLD has been transferred temporarily from the Shreveport, La., district to the Wichita, Kans., district.

* * *

S. L. STENTS is the new district sales representative in Tulsa for A. M. Byers Company, of Pittsburgh, Pa.

* * *

RICHARD MILLER, who has been drilling for the Hockley Valley Oil Company near Orangeville, Ontario, recently paid a visit to Petrolia, Ontario.

* * *

L. M. SIMMONS, of Laughlin and Simmons, with headquarters at Tulsa, spent a few days in Houston the past week on a business trip through South Texas.

* * *

RAYMOND M. MYERS, Wichita Falls, Tex., attorney for the past 16 years, has accepted a position with the legal department of the Magnolia Petroleum Company at the main offices in Dallas, Tex.

* * *

T. B. MOORE, in the research department for the Humble Oil & Refining Company, with headquarters at Houston, Tex., has returned from a pleasure trip spent in Mexico. He was accompanied by MRS. MOORE.

* * *

T. R. CHENNAULT, senior clerk for the Humble Oil & Refining Company, with headquarters at Tomball, Tex., has been promoted to district chief clerk and warehouse man and transferred to the Kittrell, Texas, district.

DO YOU REMEMBER?

From The Oil and Gas Journal Files

25 Years Ago

April 27, 1910

The threatening appearance of the Caddo Field in Northwest Louisiana, the gusher production of California, and the apparent inability of the Illinois and Eastern fields to hold their own, seems to offer little encouragement for much immediate improvement in the marketing conditions in Oklahoma and operators are not anxious to increase their low cost production.

W. L. Mellon, accompanied by C. H. Markham, of Pittsburgh, Pa., president of the Gulf Pipe Line Co. and affiliated companies, and F. A. Leovy, of Beaumont, Tex., were making an inspection trip through the Texas and Louisiana fields.

20 Years Ago

April 22, 1915

The heaviest rainfall in several years reduced operations in Oklahoma to nearly a standstill while electrical storms did great damage in the Gulf Coast and Louisiana territories.

Work was progressing rapidly on the line of the Prairie Pipe Line Co. near Inola, Kans.

Some 293 refugees from the oil fields of Tampico and other Mexican areas were rescued by a United States transport.

10 Years Ago

April 23, 1925

Smackover production established a new record with over 300,000 bbls. a day.

The Prairie Oil & Gas Co. purchased the properties of the Shamrock Oil Co. in North Texas, and the Texas Co. bought the properties of the Petroleum Producers Co.

The Lockhart Field in Caldwell County, Southwest Texas, was attracting considerable attention.

W. H. REYNOLDS, of the exploitation division, Shell Petroleum Corporation, Tulsa, and MRS. REYNOLDS have gone to Corpus Christi, Tex., for their vacation.

* * *

E. C. ISOM, with the Sinclair Refining Company, with headquarters at New York, was a business visitor to the company's offices at Houston, Tex., the past week.

* * *

FRANK C. TYE, on April 6, celebrated his eightieth birthday at Brigden, Ontario. As a youth a Great Lakes sailor, he worked in the Petrolia oil field in the early boom days.

* * *

F. R. HENRY, of Los Angeles, Calif., secretary of the Terminal Oil Company, Ltd., recently visited Calgary and other southern Alberta points in connection with his company's Alberta drilling operations.

* * *

C. E. HEWITT, scout for Mid-Continent Petroleum Corporation in the Okmulgee, Okla., district, has been transferred to the Enid, Okla., district. C. F. GRANT has been transferred to the Okmulgee district.

* * *

MR. and MRS. H. R. FUNK are the proud parents of a young son who arrived Friday, April 19. Mr. Funk is production superintendent for the Sinclair Prairie Oil Company, with headquarters at Houston, Tex.

* * *

RAY H. RUSSELL, division office clerk for the Humble Oil & Refining Company at Tyler, Tex., has been transferred to Anahuac, Tex., where he will be in charge of the district office as district chief clerk and warehouse man.

* * *

JOHN M. VETTER, chief geologist for the Rio Bravo Oil Company at Houston, Tex., has opened offices in the Second National Bank Building where he will do consulting work. He will still retain his connection with the company.

* * *

E. B. WILSON, geologist, has been transferred from the Tyler to the San Angelo, Tex., office of the Sun Oil Company.

* * *

DONALD GOODWILL, JR., of the Louisiana State Department of Conservation, has moved from Shreveport to New Orleans, La.

* * *

J. A. TONG has become associated with the Socony-Vacuum Oil Company at Caracas, Venezuela, South America, and has given up his consulting practice.

* * *

ARTHUR STEPHENS, O.B.E., managing director of the British Sun Oil Company, Ltd., is visiting the offices of the Sun Oil Company in Philadelphia, Pa.

* * *

PAUL S. OLES, geologist, formerly with Sinclair Prairie Oil Company, is now president of the newly organized Pine Rock Oil Company, with headquarters at Midland, Tex.

* * *

W. CHALMERS BURNS, executive vice president of the Richfield Oil Company, New York, last week attended a meeting of the company's up-state distributors held at Syracuse, N. Y.

* * *

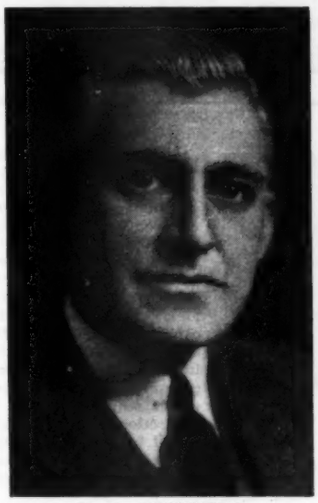
WALTER RITTERBUSCH, has become superintendent of the land department of Enterprise Transit Company and Kewanee Oil & Gas Company. He was formerly with Phillips Petroleum Company.

* * *

F. G. ROBINSON, former traffic manager of the Lone Star Gas Company, Dallas, Tex., has been named traffic manager of the Galveston (Texas) Chamber of Commerce. He has been engaged in similar work for 26 years.

Supervises Special Refinery Work

R. P. Russell is one of the younger executives of the Standard Oil Company (New Jersey) and for several years has been connected with its research and development work. As vice president and general manager of the Standard Oil Development Company, he is now in active charge of the technical phases of the company's extensive and widely scattered operations having to do with the refining of petroleum products and the production of a wide range of specialties.



R. P. RUSSELL

Mr. Russell did his undergraduate work in Clark University, completing the course in 1917. He then served as an instructor at Worcester Polytechnic Institute and later the University of Michigan. Following the war he took postgraduate work at Massachusetts Institute of Technology, receiving a master of science degree in 1922.

He continued with Massachusetts Institute of Technology as research assistant and as associate and divisional director of the Research Laboratory of Applied Chemistry. In 1926 he was made assistant director of this laboratory and also served as assistant professor of chemical engineering. During this period he was co-author with R. T. Haslam, now in charge of domestic sales for the Standard Oil Company (New Jersey) marketing units, of "Fuels and Their Combustion."

Mr. Russell joined the Standard organization in 1927 as director of research and development work for the Standard Oil Company of Louisiana, with headquarters at the Baton Rouge, La., refinery. In 1930 he returned East as general manager of the Hydro Engineering & Chemical Company, a subsidiary of the development company. In 1932 he was placed in charge of the development division of the Standard Oil Development Company. At that time he also took over additional supervision of all general technical activities not hitherto consolidated.

Mr. Russell has been closely connected from the start with the company's work in hydrogenation. He was appointed to his present position the latter part of 1934. He is an officer in several subsidiary or closely affiliated organizations of the Development company. His headquarters are in New York.

GLEN M. RUBY, ROBERT B. MORAN, E. R. READ, ROBIN WILLIS, C. S. DeMONBRUN, GRAYDON OLIVER, and R. D. SKELLEY were recently elected directors of the Nordon Corporation, Ltd., at the annual election.

* * *

T. B. MARSHALL, president, and JOHN T. O'NEIL, E. B. FISH and E. W. PECK, vice presidents of the Wellington Oil Company, were re-elected to their respective offices at the annual meeting of the company held recently.

* * *

JAMES PEAT, veteran oil operator of Petrolia, Ontario, on April 11, celebrated his ninety-third birthday. A native of Scotland, as a young man he learned the drilling business in Pennsylvania, and in 1870 brought to Petrolia the first cable tool outfit ever used in Canada. He later handled extensive drilling contracts in many parts of Canada.

* * *

THE wedding took place at Port Huron, Mich., on April 9 of HARRY W. SMITH, of Petrolia, Ontario, and MISS FLORENCE BLANCHE CRAIG of Aberfeldy, Ontario. Mr Smith has left for Colombia on a two-year drilling contract for the International Petroleum Company, sailing from New York on April 13 on the Grace line steamship "Santa Lucia." Mrs. Smith will follow later.

* * *

JAMES R. KEARNEY, president of the James R. Kearney Corporation, St. Louis, Mo.; T. C. CLARK, vice president of the company, and MRS. CLARK, and F. W. KEARNEY, son of the president, are making a business trip through the Mid-Continent and are to continue to the Pacific Coast. They were accompanied on the Texas trip by E. C. DWELLE, district representative for the company, Dallas, Tex.

PAT R. COX, independent oil man, Houston, Tex., has taken a position with the Standco Oil Company as Houston city representative.

* * *

GEORGE S. BERRY, assistant land man for the Sinclair Prairie Oil Company at Houston, Tex., has returned from an extended business trip through Southeast Texas.

* * *

P. T. SHARPLES, president of the Sharples Specialty Company, Philadelphia, Pa., and L. D. JONES, engineer, with the Sharples company, are now on a European trip.

* * *

A. D. ODEN, district sales manager for the Sinclair Refining Company at New York, spent a few days on business at the company's offices at Houston, Tex., last week.

* * *

E. L. WYCOFF, former Tulsan and more recently with the National Tube Company at Fort Worth, Tex., has been transferred to that company's offices in Bakersfield, Calif.

* * *

J. S. McCUNE, district petroleum engineer for the Humble Oil & Refining Company, with headquarters at Thompson, Tex., has been transferred to the Conroe, Texas, district.

* * *

E. L. ELBERT, of the Standard Oil Company of Kentucky, accompanied by MRS. ELBERT, arrived in New York City last week on the Grace liner, Santa Rosa, from California.

* * *

G. W. GREENLEE, scout for Mid-Continent Petroleum Corporation, in the Cushing, Okla., area, is recovering after a leg fracture and other injuries in an automobile collision at Drumright, Okla.

* * *

P. D. MELLON, chief engineer of the Canadian Western Natural Gas, Light, Heat & Power Company, of Calgary, Alberta, recently inspected the company's system in Lethbridge and other southern Alberta points.

* * *

W. W. CAGLE, of the Greenville, Tex., division of the Community Natural Gas Company, has been made manager of the Commerce, Tex., district of the company. He has been with the Lone Star Gas System, of which Community Natural Gas Company is a part, since 1928.

* * *

D. A. HOLM, formerly stationed in the Ada, Okla., district for the Carter Oil Company, has been transferred to Kansas, where he will be assigned to the Wichita offices, according to announcement by PHIL COCHRAN, district geologist in Kansas for the Carter company. Mr. Holm has been with the company for four years. He came to the Mid-Continent from New York six years ago. He is a graduate geologist and attended the University of Michigan.

* * *

W. L. STEWART, JR., vice president of the Union Oil Company, has gone in for yachting in a big way and by next September will be in possession of a new 55-foot racing staysail schooner yacht which will have a waterline length of 44 feet, 12½-foot beam and a draft just under 8 feet. It will carry 19,000 pounds of lead as outside ballast and will hoist 1,568.5 square feet of working canvas with the mainmast sheave 55 feet and 2 inches above deck. The new schooner will be powered with a 40-horsepower Gray motor using the new type V-drive shaft assembly. It will be put into commission September 1. Mr. Stewart will continue to use his present 60-foot schooner, Paisano, during the coming racing season. The American Petroleum Institute will hold its annual meeting in Los Angeles, Calif., early in November and from past performances Mr. Stewart is a splendid host and it will afford yachtsmen a good chance to look over California's newest yacht.

FIELD PROBLEMS FROM READERS

Edited by Thomas F. Smiley

This department is conducted in order that men connected with the drilling, producing and transporting branches of the petroleum industry may obtain aid in solving problems that confront them in their work. Readers are invited to send questions freely. These questions will be placed in the hands of persons capable of answering them authoritatively, and the answers, based on the best available information, will be published.

Each question should give as much detail as possible, especially if it involves depths of sands, types of sands and operations on adjoining or nearby properties. The source of questions will be considered confidential, and only the initials of the sender will be published. Questions involving patented processes, intricate formulas or estimates of cost cannnot be answered. If an immediate answer is important, one will be given by mail when the writer requests it.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or improved old ones.

On Which Stroke Should the Oil Be Delivered, Up or Down?

This is not so much a field problem as it is an argument, but we should be very glad to have you settle it for us. The question is: Should a beam well produce oil at the bleeder or at the top of the hole on the upward (or lift) stroke or on the downward stroke? Opinion is divided as to which it should be.—W. J. G.

Both opinions are right, or wrong. It just depends.

There are many variables in pumping wells. Even the same well at one time may deliver its oil on the down stroke of the polished rods while under other adjustments it will deliver the fluid on the up stroke.

If a small capacity well is being pumped with a fast motion it is probable that after the tubing has been filled completely oil will be discharged at the tubing connection at the top of the well while the polished rod is on the down stroke. This is due to the fact that the downward movement of the rods causes sufficient displacement in the tubing to cause the oil-filled tubing to overflow and thus discharge some of its oil.

Adjust this well so that the beam strokes are slower and it is probable that it then will discharge its fluid on the upward stroke of the polished rod.

In larger-capacity wells the oil usually is discharged from the tubing while the polished rod is on the up stroke. This is due to the fact that the pumper can get maximum output of oil with proper beam motion and under such conditions the rod stretch is compensated and the traveling valve in the working barrel functions properly.

In some instances a well will flow oil out of the tubing on both the up stroke and the down stroke of the polished rod. Such wells usually produce a considerable volume of gas along with the oil, and the expansive force of this gas keeps the fluid moving after it has entered the tubing.

The ideal pumping cycle starts with the downward movement of the traveling valve with the fluid passing upward through it in the working barrel and with the standing valve at the bottom of the working barrel closed.

When the bottom of the stroke is reached the oil within the working barrel should be on the top side of the traveling valve, and when the stretch of the rods has been taken up the traveling valve starts up and lifts the oil above it in both barrel and tubing, and as the tubing is full of oil when the up stroke starts this extra oil is forced out at the top of the well.

As the traveling valve moves upward within the working barrel a vacancy is created within the barrel below the traveling valve and the pressure of the column of fluid on the outside of the tubing will force the standing valve off its seat and permit the fluid to flow into the vacant space within the working barrel.

If the pump and strokes are properly adjusted there should be fluid on both sides of the traveling valve at all times. This fluid is transferred from one side of this valve to the other by the reversal of direction of motion.

The condition just described is ideal and does not take into account many other factors that enter into the pumping problems of wells, such as slippage, rod stretch, gas compression, delayed closing of valves due to mechanical troubles or foreign material entering and sticking them open or shut, improper pump motion and counterbalancing and other conditions.

It is therefore impossible to say definitely that oil will be discharged at the top of the hole on either the upward or lift stroke or on the downward stroke. With a single-acting type working barrel and traveling valve the fluid should leave the upper end of the tubing during the up stroke of the polished rod only, but as ideal conditions are seldom attained at pumping wells your argument is still on and until it is confined within definite bounds neither side can be awarded a decision.

Pressure Control Drilling Offers Ideal Method of Opening Pay

I have been hearing references to pressure control drilling and have seen it mentioned in articles that I have read. I would like to know more about it. Please tell me what is meant by pressure control drilling. Just what is the procedure followed? How and when is it used?—O. S. G.

Pressure control drilling is the designation used to describe the practice in many fields of penetrating the productive formations with the drill, using rotary equipment, without placing on the formation fluid column pressures in excess of the formation pressure.

This is an ideal method of opening any producing stratum. In shallower wells drilled by cable tool methods it has been the practice of good drillers to "feel" the change in formations and proceed with caution so only the productive section of the pay zone is penetrated and the bottom of the hole is well above water.

With the advent of the rotary drilling method there has been a tendency to "drill in" with as much speed as possible, taking in all of the producing section that is safe and until the hole is washed free of mud-laden fluid it is not possible to know the well's capacity.

Under the theory that when the formation contains oil in commercial quantity it will be under sufficient pressure to blow the mud out of the hole (assuming that the pressure exerted by the fluid column is less than formation pressure), it has become common practice to load the mud to be safe. In many instances a portion of this mud and the water squeezed out of the mud have gone back into the formation and have decreased the well's capacity to produce by decreasing the formation's permeability and porosity.

If it were desired to sample a piece of sandstone or any other sedimentary formation the ideal method to follow would be to cut small "pancakes" out of the rock and assemble them in the order of their occurrence in the rock sampled.

This same principle obtains in drilling into a producing formation several thousands feet beneath the earth's surface.

To accomplish this the drill stem is sealed at the top of the casing in such a manner as to prevent gas or fluid in the formation from escaping in that direction at the well head.

To the casinghead there is connected a flow line that leads directly to a high-pressure trap, or oil and gas separator, usually built and tested by hydraulic pressure up to 2,000 pounds per square inch. The working pressure of such a trap is usually around 1,000 pounds per square inch.

With such a hook-up at the well head the material discharged from the hole is directed into this trap and the well pressures exerted on the trap may be in any amount up to the 1,000 pounds working pressure of the trap.

When the critical section in the bottom of the hole is reached the well is freed of all mud-laden fluid. Clear water cut to about half its weight by the addition of gas at the base of the stand pipe in the derrick is used to cool the rock bit and to carry the cuttings up the hole as they are freed from the formation.

In other words, as the bit grinds the rock into fragments, usually smaller than rice or wheat grains, this pulverized rock is carried out of the way and delivered into the high-pressure trap at the well head, where it is deposited or dropped through change in velocity of stream flow. The change comes about by increasing the cross section of the flow column from a 4 or 6-inch pipe to a 30-inch diameter trap body.

As this material is accumulated in the bottom of the trap it is possible to take part, or all, of the cuttings continuously or at stated intervals. These samples represent accurately the section penetrated by the drill a few minutes previously. The time needed to deliver the cuttings into the trap can be calculated closely because it is possible under this system to blow all cuttings out of the hole without adding to them until it is certain that the system is clear of all former cuttings.

As the drill bit penetrates the formation the pressure gauge on the oil and gas separator at the well head will register the differential in pressure between formation pressure and fluid column pressure. When the bit penetrates a virgin producing section of the stratum, entrapped gas and oil under relatively higher pressure than fluid column or the average formation pressures is suddenly released into the bottom of the hole. This acts as an explosion and the elastic wave set up by this sudden release of formation pressure will travel upward through the fluid medium in the annular space between drill pipe and casing and register in the form of increased pressure on the gauge on the oil and gas separator at the well head.

Following this elastic wave the gas-oil mixture that is released into the hole will make its way to the surface and escape into the high pressure separator at the well head and there can be measured and sampled.

By this method it is possible to make a continuous chronological log of the well, recording at all times the kind of formation penetrated by the drill and registering changes in strata that show oil and gas contents. The advantage of the well head pressure control system over the older method of drilling into the formation with the hole full of mud is that in the one case the work is literally done "in the mud" and sampling is difficult, and in the more modern system clear water is used and it is possible to get representative samples of the formation penetrated continuously.

Wells that have been completed by the pressure control drilling system show by their accurate logs the exact thickness of the producing zones and the samples can be checked for porosity, permeability and saturation and an accurate estimate can be made of the productivity of the well. Coring the producing section has come the nearest to producing this desired result in the past, and lost sections of the formation always have led to assumptions of productive zones. This uncertainty can be almost entirely eliminated by the use of the modern system.

Why Was It Called That?

HOLIDAY

In the parlance of the pipe line a holiday is a pinhole or bare spot remaining in pipe which has received a protective coating. The term is supposed to have been borrowed from the slang of the sea, where it is applied to a neglected piece of work. Holidays usually are patched with a hand brush, but first they must be found, and this is done with a holiday detector, commonly a light wood box containing a storage battery and an electrical coil with vibrating point similar to the coils used in the old Model "T" Ford automobiles. The box is mounted on wheels, and attached to it is a metal ring fitted with fine wire fingers which encircle the pipe. As the outfit is moved along the coated pipe a spark is emitted when a holiday in the coating is passed over.

NATURAL GAS DEVELOPMENTS

Frank C. Smith Urges Conservation of Gas

HOUSTON, Tex., Apr. 22.—The reserves of natural gas around Houston, if conserved, will continue to give it an advantage for location of industry, Frank C. Smith, president and general manager of the Houston Natural Gas Co., declared at a luncheon of the Houston Real Estate Board.

He said that so far the natural gas reserves in the Houston territory and South Texas have been protected against waste, but he deplored the waste of natural gas in the Panhandle, equivalent, he said, to pouring 62,000,000 bbls. of petroleum on the ground and setting it afire.

"The waste in the Panhandle Field, which is 115 miles long and 20 miles wide, is so terrible that engineers estimate the life of the field will be reduced from 40 to 17½ years if the waste is not stopped," Mr. Smith said. "Gas pressures have been reduced in many parts of the field to less than half the normal pressures. The wastage has been compared to the practice of killing cattle to obtain the hoofs to make knife handles and then throwing the remainder of the carcass away.

"The percentage of energy contained in gasoline obtained by the gas wasting stripping process is 3 per cent and 97 per cent is wasted and never can be replaced."

Nearly $5,000,000,000, he said, is invested in the gas industry by 1,985 companies which serve 8,000 cities, towns and villages.

The industry serves more than 5,200,000 domestic consumers and probably has 20,000,000 users. The gas sales for 1934 exceeded $314,000,000 compared with $302,000,000 in 1933. The total annual gas production in the United States is little more than 1,500,000,000 feet. Texas is the largest gas producing state. In 1932 Texas produced 456,000,000 feet, worth about $90,000,000.

The gas is drawn from 54,000 wells. The industry employs 119,000 persons at an annual pay roll of $168,000,000, and under normal conditions employs about 10,000 persons constantly in construction.

Mr. Smith pointed out that an industry which plays such an important part in the economic and social life of the country is being threatened by an appalling waste.

MUSKEGON GAS DIRECTORS

MUSKEGON, Mich., Apr. 22.—Two new local directors were elected by the Muskegon Gas Co. to succeed two local directors who resigned at a meeting held at the company headquarters last week. Frank E. McKee, of North Muskegon, and C. N. Sessions, Muskegon attorney, were named to succeed George W. Zinky and W. E. Thornton, both of Muskegon, who resigned because of periodical absence from their home city and personal business reasons, it was announced by Dean W. Flowers, vice president and general manager.

Present officers are: President, Chester N. Chubb, of Chicago, vice president of the American Light & Traction Co. of which the local company is a subsidiary; vice president and general manager, Mr. Flowers, and secretary-treasurer, G. J. Zorn, of Muskegon. These three officers and the following comprise the new board of nine directors: Messrs. McKee and Sessions, Fred J. Loewe and Otto Seyforth, of Muskegon; Henry Morton, of Muskegon Heights, and R. B. Brown of Milwaukee, also a vice president of the parent company.

Messrs. Chubb, Glenn W. Chamberlain, head of the Rapids Gas Light Co., and Oliver Hagerman, of Chicago, chief engineer of the parent company, with local officials inspected the Greater Muskegon plant during the week.

Reduction at Emporia Approved by Commission

TOPEKA, Kans., Apr. 22.—The Kansas Corporation Commission has approved a reduction in the gas rates at Emporia, which will save the consumers of that city $26,000 a year on the basis of present consumption.

The new rate was filled by the Kansas Electric Power Co., which owns the distributing system at Emporia. It buys its gas from Cities Service, and recently signed a contract for gas at 30 cents a thousand feet at the city gate. Industrial gas in the power company's power plant is also involved in the city gate rate.

The present rate at Emporia is $1 for each of the first 3,000 feet; 90 cents for each of the next 2,000 feet; 75 cents for each of the next 5,000 feet; 65 cents for each of the next 5,000 feet, and 55 cents for each 1,000 feet above 15,000 feet consumption a month.

The new rate is $1 for the first thousand feet; 75 cents for the next 1,000 feet; 50 cents for each of the next 18,000 feet; 45 cents for each of the next 30,000 feet; 40 cents for the next 100,000 feet, and all over 150,000 feet a month at 35 cents a thousand.

The old rate provided a penalty of 10 per cent on all bills not paid within 10 days. The new rate provides a 5 per cent penalty on the first $15 and 2 per cent on all excess of unpaid bills.

The reduction amounts to 32.54 per cent for those who burn as much as 5,000 feet a month. The average reduction is near 25 per cent, the larger reduction being for the consumers who use gass for heating as well as cooking until the consumption reaches the larger residences, where percentage reduction drops to below 22 per cent.

The new rate becomes effective May 1.

Trade Commission Report On Natural Gas Inquiries

WASHINGTON, D. C., Apr. 22.—The Federal Trade Commission has transmitted to the Senate its interim report of progress in the power and gas utilities investigation, accompanied by transcript of testimony and exhibits introduced in recent hearings in New York and Washington. Commission examiners are now at work in the field examining reports of large gas pipe line companies.

Field accounting examinations were continued on three natural gas holding companies, on three natural gas pipe lines, on a securities sales company and on a large electric operating company. An engineering examination of a large natural gas holding company group was also continued.

A field accounting examination was begun on an important natural gas producing pipe line transmission and gas distributing company group; and, an engineering examination was also begun on two large natural gas pipe lines.

PURIFIED GAS PROPOSAL

KINGSVILLE, Ontario, Apr. 20.—Plans are under consideration for supplying purified gas to Kingsville instead of the raw gas now furnished. The neighboring town of Leamington will change to pure gas this year, and the time is regarded as opportune for extending the new service to Kingsville.

Kansas Gas Investigation Is Practically Concluded

TOPEKA, Kans., Apr. 22.—The Kansas gas rate investigation has been practically completed so far as the taking of testimony in the pipe line case is concerned.

As a consequence of disagreement in the valuation figures of the Cities Service Gas Co. and those prepared by Black & Veatch, consulting engineers for the commission, the company is preparing a partly new inventory of some of its property. When this is furnished then E. B. Black will apply his unit costs to the items and thus will adjust his calculations on the value of the properties. The company is also to furnish some additional information to the accountants for the commission. When this information is submitted in exhibit form, it will be determined whether there should be another session for cross-examination of witnesses on the new material.

The company's attorneys served notice that two new elements might be injected into the investigation, depending upon the action of the Oklahoma and Texas legislatures. In both states bills to establish a tax on natural gas are under consideration and if enacted may have some effect upon the price of gas.

Nels Anderson, engineer for the commission, was called to the stand. The Northern Natural Gas Co., which operates a pipe line from the Amarillo Field to Minneapolis and to some points in South Dakota, filed its annual report with the commission this month. Anderson had copies of the report. This showed that the average cost of the right of way for the pipe line for the entire Northern system was $1.07 a rod. Cities Service Gas Co. had claimed $3.20 to $4.80 as the cost of its right of way and Mr. Black had figured 80 cents a rod for right of way for pipe lines less than 12 inches in diameter and $1.25 a rod for right of way for pipe lines of larger size. The Northern pipe line through Kansas is a 26-inch line. Attorneys for Cities Service objected to the admission of the report as evidence and the commission sustained the objection.

H. L. Eastman, valuation engineer for the Cities Service Gas Co., told the commission the cost of transporting domestic gas was much higher than the cost of transporting industrial gas. He said the reason was the load factor and the investment required to take care of the peak load of domestic demand.

Eastman asserted the probable average demand of gas for domestic purposes in the summer months was 25 per cent of the peak demand. Therefore the company had to make an investment to take care of the peak demand and a large part of this investment would be idle much of the time if the company did not have the industrial gas demand. Further Mr. Eastman said the industrial demand acted as a sort of storage supply for the domestic gas, as the industrial gas could be turned off and that additional amount turned into domestic mains.

"This system was designed for supplying domestic gas," Mr. Eastman said. "Thus whatever industrial gas is sold is credited to the domestic gas sales and keeps down the price of domestic gas. We could not maintain the present levels of domestic gas rates if it were not for the industrial business."

Last year the company sold 34,000,000,000 feet of gas for industrial purposes and 20,000,000,000 feet for domestic purposes. Mr. Eastman asserted gas for industrial purposes always was sold in competition with other fuels, oil and coal, and its price was calculated on the competitive prices for other fuels.

Mr. Eastman declared he was opposed to any zoning system for gas, as he believed it was impracticable and inequitable.

When the record is transcribed and the final exhibits submitted and examined it is expected that the attorneys for both sides will submit the case on briefs and there will be no oral arguments before the commission.

Gas Company Withdraws From Dilution Inquiry

DALLAS, Tex., Apr. 22.—Because it could not bind itself to accept results of the gas dilution investigation in advance of the experiments, the Lone Star Gas Co. decided to withdraw its observers from the tests being made in Fort Worth. Although the two observers will be withdrawn, officials of the company said they would assist the U. S. Bureau of Standards representatives in any way possible during their experiments. This will include gas from the mains and equipment that might be needed to gather it, L. B. Denning told the city council.

E. R. Weaver, chief of the gas division of the Bureau of Standards, who is in charge of the investigation, has ruled that any observers to the experiments must call attention to any errors that might come up and state their beliefs in writing at the time they are observed.

The tests are being made at the request of the city of Dallas, but Fort Worth is paying one-half of the cost because that municipality is interested in the results also.

Municipal Plant Fails To Oust Rival Company

JEFFERSON CITY, Mo., Apr. 22.—The city of Sikeston lost another round in its long fight to oust the Missouri Utilities Co., which competes with the city's electric plant.

Affirming a decision by the Cole County Circuit Court, the Supreme Court upheld the Missouri Public Service Commission in refusing to set aside the company's certificate of convenience and necessity to operate at Sikeston. The city sought to have the certificate set aside in order to have the right to maintain an ouster suit.

In its decision the Supreme Court stated:

"We hold that these conclusions of the commission are correct.

"A city's entrance in the field neither adds to nor takes away from the commission's authority over private companies. The city has the right to compete, but by engaging in the business it does not automatically terminate the rights of others to be there."

SASKATCHEWAN GAS PROJECTS

REGINA, Saskatchewan, Apr. 20.—Two groups interested in the piping of natural gas to Regina have formulated tentative propositions to the Regina city council. One company, reported to be backed by Regina men with the support of British capital, involves the piping of gas from the Bowdoin Field in Montana. Another group interested in acreage between Regina and Saskatoon is seeking franchises for both cities, and is planning to include North Battleford. This group will probably draw some of its supply from the Lloydminster Field, where the discovery well is supplying the town of Lloydminster and additional wells are being drilled.

MARKET RECORD OF OIL SECURITIES

Active Oil Stocks Listed on New York Stock Exchange

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1935 High	1935 Low	Week ended April 20 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	Dividends paid in 1934	1934 High	1934 Low	1933 High	1933 Low
58	48	5,300	58	56¾	57¾	Amerada Corp.	774,875	N.P.	50cQ	4-30-35	$2.00	55⅝	39	47⅝	18½
25⅜	21⅜	17,800	24⅞	23	24	Atlantic Refining	2,673,834	$25	25cQ	3-15-35	1.00	35¼	21½	32½	12⅜
9	5⅞	47,600	8	8½	8⅞	Barnsdall Corp. A	2,248,795	$5	....	5-11-31	....	10	5⅞	11	3
7	3⅜	11,900	6⅝	6⅛	6½	Columbia Gas & Elec.	11,610,036	N.P.	....	5-15-34	‡ .25	19¼	6⅝	28⅛	9
8¾	6½	29,200	8½	7¾	8¼	Consolidated Oil Corp.	14,218,835	N.P.	14c	10-31-34	.42	14¼	7¼	15¾	5
19¾	15⅛	29,700	19¾	18½	19⅜	Continental Oil of Delaware	4,738,593	$5	12½c	4-30-35	.50	22¾	15¾	19⅝	4⅞
18⅞	11⅜	4,300	15¾	14⅞	15½	General Asphalt	387,149	$10	....	6-15-32	....	23½	12	27	4⅝
3⅜	1½	1,500	3	2¾	2¾	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	5⅝	2½	7⅜	1⅞
1⅞	⅝	1,700	1⅝	1	1⅝	Louisiana Oil Refining	1,302,158	N.P.	....	.....	....	3⅜	⅝	4	⅝
12⅞	9½	11,700	12⅜	11¾	12⅜	Mid-Continent Petroleum	1,857,912	$10	25c	11-15-34	.50	14¾	9⅛	16	3¾
14⅝	9	1,200	13¾	12⅞	13½	National Supply of Delaware	382,591	$25	....	5-15-31	....	21⅛	10	28⅝	4
12	9¼	26,700	12	11¼	12	Ohio Oil Co.	6,563,107	N.P.	15c	12-15-34	.45	15⅞	8½	17⅝	4⅜
9½	7	2,900	9½	8¾	8¾	Pacific Western Oil	1,000,000	N.P.	40c	11-30-34	.40	9⅜	5½	9½	3
1⅜	⅝	1,000	1¼	1⅛	1¼	Panhandle P. & R.	198,770	N.P.	....	.....	....	2½	⅝	4¼	⅜
19⅛	13¾	21,200	19⅛	18⅝	18⅞	Phillips Petroleum	4,154,687	N.P.	25c	3-1-35	1.00	20¾	13⅜	18¾	4⅜
10⅛	6½	20,900	10⅛	9⅛	9¾	Plymouth Oil Co.	1,014,082	$5	25c	3-30-35	75c & 4% Stk.	16¾	7¼	17⅝	6¾
7¾	5⅞	10,900	7¾	7¼	7¾	Pure Oil	3,038,370	N.P.	....	9-1-30	....	14⅞	6⅛	15⅜	2½
33¾	29½	1,100	33¾	33⅜	33½	Royal Dutch N. Y. shares	432,224	$14	$1.35	7-31-34	1.35	39⅛	28⅝	39¾	17⅝
28⅝	20¾	7,700	28⅝	27¼	28	Seaboard Oil of Delaware	1,204,460	N.P.	15cQ†	3-15-35	1.00	38⅜	20¾	43⅜	15
7⅞	6½	7,900	7¼	6⅞	7	Shell Union Oil	13,070,625	N.P.	....	6-30-30	....	11½	6	11⅝	4
78¾	64½	1,400	76	74	76	Shell Union Oil pfd.	400,000	$100	....	7-1-31	....	89	57	61	28½
18¾	13½	3,400	16⅝	15¾	15⅞	Simms Petroleum	461,698	$10	50c	2-1-35	.55	17⅛	7¼	12⅝	4⅝
9⅝	6½	1,900	9⅝	9	9	Skelly Oil	1,008,514	$25	....	12-15-30	....	11½	6	9⅞	3
14⅞	11	42,800	14	13⅜	14	Socony-Vacuum	31,019,694	$25	15cQ	3-15-35	.60	19⅞	12½	17	6
33	27¾	24,700	33	31⅞	32⅞	Standard Oil of California	13,102,900	N.P.	25c	3-15-35	1.00	42⅞	26½	45	19½
25¼	23	38,700	25¼	24	25¼	Standard Oil (Indiana)	15,941,894	$25	25cQ	3-15-35	1.00	32¾	23¼	34	17
32	28	200	29½	29	29½	Standard Oil of Kansas	200,000	$10	50cQ	10-31-34	2.00	41	26	39⅞	12¾
43½	35¾	36,000	41¾	39¾	41⅜	Standard Oil of New Jersey	25,740,065	$25	50cSA†	§3-15-35	1.25	50⅛	39¼	47½	22¾
68½	60	1,000	68	64	67½	Sun Oil	1,733,013	N.P.	25cQ	3-15-35	$1 & 9% Stk.	74¼	51½	59	35
21⅞	16½	18,600	21⅞	20¼	21¼	Texas Corp.	9,486,417	$25	25cQ	4-1-35	1.00	29⅝	19⅝	30⅛	10⅜
4¼	3¼	4,100	4	3⅞	3⅞	Texas Pacific Coal & Oil	880,703	$10	....	12-31-29	....	6½	2½	6½	1⅜
10½	7⅝	8,400	10½	9⅝	10	Tide Water Associated	5,618,672	N.P.	....	2-16-31	....	14⅜	8	11¾	3⅛
95½	84	2,700	95½	93½	95½	Tide Water Associated pfd.	666,524	$100	$2§	4-1-35	§8.50	87	64½	65¼	23½
18¾	14¾	8,200	18¾	17⅞	18¼	Union Oil of California	4,386,070	$25	25cQ	5-10-35	1.00	20½	11½	23⅜	8½
26⅛	20⅞	2,600	25½	25	25½	Union Tank Car Co.	1,200,000	N.P.	30cQ	3-1-35	1.20	25¾	15⅝	22¾	10½
2⅝	1	No sales ..	..	..	..	Wilcox Oil & Gas	424,839	$5	....	5-10-28	....	5¾	2	5½	2

*Ex-dividend. †Plus extras. ‡Payable in preferred stock. §On account of accumulated and current dividends. ‖Distribution 4/75 Mission Corp.

Active Oil Stocks Listed on New York Curb

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1935 High	1935 Low	Week ended April 20 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	Dividends paid in 1934	1934 High	1934 Low	1933 High	1933 Low
37½	30½	100	37½	36¾	37½	Buckeye Pipe Line Co.	200,000	$50	75cQ	3-15-35	$3.00	38	26	39¾	25
3⅛	1⅝	29,600	3⅛	2	3⅛	Carib Syndicate	799,020	25c	....	.....	....	5½	1½	7¾	¼
157	115	150	123½	120¼	123½	Chesebrough Mfg. Co.	120,000	$25	$1Q†	3-29-35	11.50	150	116	129	71
1½	¾	16,800	1⅝	1¼	1⅜	Cities Service	37,804,394	N.P.	....	6-1-32	....	4¼	1¼	6¼	1½
⅛	¾	1,200	⅞	¾	⅞	Colon Oil	2,200,000	N.P.	....	.....	....	3¼	½	4	¼
⅞	⅜	300	⅝	⅝	⅝	Cosden Oil	399,687	$1	....	.....	....	3⅞	½	3⅞	1⅜
13⅜	10	16,000	12¾	11¼	12⅝	Creole Petroleum	6,974,356	$5	....	.....	....	14⅜	9⅝	12	4¾
6	4¼	600	5⅞	5½	5⅞	Darby Petroleum	509,696	$5	25c	1-25-35	.50	7½	4½	8	2¼
1⅛	¾	200	⅞	⅞	⅞	Derby Oil & Refining	263,162	N.P.	....	.....	....	2¼	1	2¾	⅞
38	34	No sales ..	..	..	..	Eureka Pipe Line	50,000	$50	$1Q	5-1-35	4.00	37	30	41¾	20
60⅞	50¼	6,100	59½	57½	59½	Gulf Oil Corp.	4,538,101	$25	....	10-1-31	....	76¾	49¾	62	24
50¾	44	8,700	49⅞	48⅜	49⅞	Humble Oil & Refining (new)	8,923,935	N.P.	25cQ	4-1-35	§1.25	49⅝	33¼	105½	40
17⅛	15⅜	4,600	16⅞	16½	16⅞	Imperial Oil of Canada	26,857,152	N.P.	25cSA†‡	12-1-34	.92½	17⅞	12⅝	15⅞	6½
4½	3⅝	600	4½	4¼	4½	Indiana Pipe Line	300,000	$10	15cSA	5-15-35	.35	6⅞	3⅝	8	3⅛
31⅞	28	9,800	31⅞	31	31	International Petroleum	14,247,088	N.P.	56cSA†‡	12-1-34	2.28	33⅜	19⅜	23½	8¾
7	4⅜	4,100	6⅞	6½	6⅜	Louisiana Land & Exp.	3,000,000	N.P.	....	.....	....	5	2¼	2¼	⅞
6¾	3½	100	5½	5½	5½	Lion Oil Refining	270,000	N.P.	....	10-27-30	....	6	3⅝	9½	1¼
5¼	4½	2,600	5¼	5	5¼	Lone Star Gas	5,382,723	N.P.	15c	2-15-35	‖ .16	8⅜	4¼	11⅞	4¾
4⅝	4⅛	700	4½	4¼	4⅜	Mountain Producers	1,682,182	$10	15cQ	4-1-35	.60	5½	4	6½	2½
14	11⅝	1,900	14	13½	14	National Fuel Gas	3,810,183	N.P.	25cQ	4-15-35	1.00	18⅛	13⅛	20	10
8	6⅞	500	8⅛	8	8⅛	National Transit	509,000	$12.50	35cSA	12-15-34	.75	9½	7	10	5½
2⅝	2	200	2⅛	2⅛	2⅛	New Bradford Oil	1,445,202	$5	10cSA	3-15-35	.20	2½	1¾	2⅛	½
2⅛	1⅝	2,000	1⅝	1½	1⅝	New Mexico and Arizona	1,000,000	$1	....	.....	....	2¾	1	1⅞	½
3⅝	3	100	3⅛	3⅛	3⅛	New York Transit	100,000	$5	15cSO	10-15-34	.30	4¾	3	4⅞	3
5⅝	5¼	100	5½	5½	5½	Northern Pipe Line	120,000	$10	25cSA	1-2-35	.50	7	4⅝	6⅛	4¼
2⅛	1¼	5,900	1⅝	1⅜	1⅝	Pantapec Oil	1,608,700	N.P.	....	.....	....	2⅝	⅞	3¾	¼
1¼	1	100	1	1	1	Ryan Consolidated	296,931	N.P.	....	.....	....	3⅜	⅞	4¼	⅝
6½	5⅝	1,200	6⅜	6	6¼	Salt Creek Producers	1,496,859	$10	20cQ	5-1-35	.80	7⅞	5½	9¼	3½
24	21⅝	1,400	24	23½	24	South Penn Oil	1,200,000	$25	30cQ	3-30-35	1.20	26½	17½	22⅛	11
4½	3⅞	100	4½	4½	4½	Southern Pipe Line	100,000	$10	15cSA	3-1-35	.25	5½	3½	6	2⅛
52¼	45¼	No sales ..	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	$1Q	4-1-35	5.00	47	41	43	24½
21⅝	18	1,700	19⅜	18⅞	19	Standard Oil of Kentucky	2,606,983	$10	25cQ†	3-15-35	1.50	18⅜	14⅝	19¼	8⅜
10	7¾	300	10	9¼	10	Standard Oil of Nebraska	190,822	$25	....	6-20-34	.50	16⅞	8¼	20½	11
16½	11½	2,000	16½	14¾	15	Standard Oil of Ohio	753,740	$25	....	1-3-33	....	28½	12¼	41	15½
1¼	1	1,200	1¼	1¼	1¼	Sunray Oil	1,610,810	$1	....	4-15-31	....	2	⅞	1½	¼
6⅞	5	800	5⅞	5⅝	5¾	Texon Oil & Land	936,028	N.P.	15cQ†	12-29-34	.90	11	4⅜	13¾	6¼

*Ex-dividend. †Plus extras. ‡Payable in Canadian funds. §Includes 50 cents on old $25 par value stock. ‖Payable in preferred stock.

Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

Kansas Fields

(Continued from Page 106)

hours swabbing. Kansas City lime in this well at 2,400 to 2,453 feet, pumped 35 bbls. of oil and 127 bbls. of water in 24 hours. It will probably be treated in the dolomite section with acid.

Another producer was added to the Burden Pool in north central Cowley County during the past week; however, it had not been completed. It was Connell and Patton's No. 1-A Higginbottom, SW NW SW Section 29-31-6, which swabbed 270 bbls. of oil in 24 hours from sand logged at 2,878-2,942 feet, total depth. It had been shot with 95 quarts of nitro.

Three new operations were added in Cowley County, Baden, Johnson, Roth and Farrout were moving in machine in the NE NE SW Section 35-30-4, for their wildcat, No. 1 David, about 11 miles north of Winfield. Connell and Patton had ponds dug for their No. 2 Higginbottom, NW SW SW Section 29-31-6, and ponds had been dug for Lewis Production Co.'s No. 3 Pierce in the NE SE SE Section 30-31-6.

Stanolind Oil & Gas Co., in its No. 2 Heyen, NW SE NW Section 31-22-11w, was apparently extending the Richardson Pool of Stafford County to the northwest by getting 400 feet of oil at 3,519 to 3,525 feet in Siliceous lime.

Courtney B. Davis and others were starting No. 1 Riley, SE cor. Section 19-22-11w, 1½ miles north of the Richardson Pool in Stafford County.

Southeast of St. John in Stafford County, Lario Oil & Gas Co.'s discovery of last week, No. 1 Tudormorgan, SE NW Section 23-24-13w, pumped 65 bbls. of oil in 24 hours of 33 gravity oil. Production was from the Kansas City-Lansing lime at 3,508 to 3,597 feet, total depth, and the well, according to last reports, was shut down waiting on effects of a 1,500-gallon acid shot.

California Fields

(Continued from Page 108)

drilling, however, as their respective holdings are located somewhat apart.

In the Midway-Sunset Field of Kern County, the Honolulu Oil Corp. has listed well No. 21 in Section 14-32-24 as a completed well following completion of drilling operations at 2,976 feet. This new producer was brought in pumping 121 bbls. of relatively clean 25.8 gravity oil per day. Over in the Elwood Field of Santa Barbara County, the Pacific Western Oil Co. succeeded in finishing well No. 14 on tideland permit No. 92 after bottoming the hole at 3,656 feet and finishing it with a 6⅝-inch liner carrying 245 feet of perforated. This new well was brought in on a compressor doing 1,472 bbls. of 35.3 gravity oil cutting 26.4 per cent. This well was finished in the Vaqueros, but it will be noted that the liner is sufficiently large enough to permit deeper drilling after it is pulled. The water string in this well is 11¾-inch landed and cemented at 3,402 feet.

W. M. McDERMOTT DIES

William M. McDermott, 45 years old, division superintendent of the Gulf Pipe Line Co., died last week in a Tulsa hospital. He had been ill of pneumonia only a few days.

Mr. McDermott was born in Butler County, Ohio. He joined the Ohio Oil Co. in pipe line operations in Illinois. He was first employed by the Gulf company in 1909, filling various positions, including superintendency of the telephone and telegraph department.

La.-Ark. Wildcats

(Continued from Page 88)

Roy A. Raines et al's No. 1 Raines est., 330 ft. N and E, SW cor. Sec. 8-9-10.
Junked and abd. 3,540 ft.

RAPIDES PARISH

Williams-Carroll & Day's No. 1 Armstrong & Murphy, 334 ft. N, 300 ft. W, SE cor. Sec. 24-5n-1w.
Drlg. shale 2,220 ft.

RED RIVER PARISH

Sterling O. & R. Co.'s No. 1 Long Bell, Sec. 19-13-9.
Drlg. 2,926 ft.

J. S. Tuffree's No. 1 Wilkinson, 1,320 ft. S and W, NE cor. Sec. 11-13-11.
Drlg. 1,395 ft.

SABINE PARISH

H. J. Brothers et al's No. 1 Edwards, 300 ft. S and W, NE cor. SW NW Sec. 29-9-13.
Tested dry; S.D.; W.O. 2,015 ft.

Crescent Drlg. Co.'s No. 3 Garner, Sec. 3-7-11.
Location.

M. T. Hines' No. 1 J. B. Hill, SW NE Sec. 4-6-11.
Coring 2,216 ft.

Laurel Pet. Co.'s No. 1 Long Bell Lbr. Co., 330 ft. N and E, SW cor. Sec. 14-8-14.
Drlg. 600 ft.

Lawson-Leavell & Bryant's No. 4 Bank of P. H., 330 ft. S and W, NE cor. NW NE Sec. 29-9-13.
Set 6-in. 1,580 ft.; drlg. 1,945 ft.

Jack Lent's No. 1 Williams, Sec. 13-7-11.
S.D. 950 ft.

Dave McConnell's No. 1 Whiting Corp., Sec. 8-8-13.
W.O.S.R. 1,956 ft.

Hill Meyers et al's No. 1 Henderson, 330 ft. S and W, NE cor. SE NE Sec. 29-9-13.
Comp., pumping 12 bbls. 1,956 ft.

Strickland et al's No. 1 Whitney Corp., Sec. 32-10-12.
Recmt. 8-in.; T.D. 1,590 ft.

UNION PARISH

Carbon Consolidated's No. 1 Hollis, 946 ft. N, 1,056 ft. E, SW cor. SE Sec. 10-21-3e.
Set 12½-in. 154 ft.

Southern Carbon Co.'s No. 66 fee, 660 ft. S. 1,980 ft. E, NW cor. Sec. 5-20-4e.
Comp.; gauged 14,500,000 ft. 2,215 ft.

WEBSTER PARISH

Virgil Likens' No. 1 E. L. Stewart, 1,020 ft. E, 600 ft. S of NW cor. Sec. 23-18-10.
Drlg. 1,725 ft.

ARKANSAS

ASHLEY COUNTY

Glenn E. McFaddin et al's No. 1 Boreine Farms, 660 ft. S and W, NE cor. Sec. 1-18-8.
D.S. stuck 2,800 ft.

COLUMBIA COUNTY

Southern States Gas Co.'s No. 1 Piney Woods Lbr. Co., 330 ft. N and E, SW cor. NE NW Sec. 10-20-22.
Drlg. 823 ft.

HEMPSTEAD COUNTY

A. H. Bagnelle's No. 1 Trattner & Rhinehart, Sec. 2-13-26.
S.D. 1,992 ft.

F. W. Martin's No. 2 Lafferty, C NW Sec. 17-14-24.
Rigging up.

LAFAYETTE COUNTY

W. H. Harvey's No. 2 Allen, Sec. 18-19-24.
S.W. and abnd. 2,787 ft.

Kamon & Neely's No. 1 Cockran, NW cor. SE SW Sec. 26-19-25.
Drlg. 3,100 ft.

Riggs Bros.' No. 1 Dubose, SE cor. SW NW Sec. 35-15-24.
Abnd. 2,000 ft.

LONOKE COUNTY

J. G. Strahan's No. 1 Hardin, Sec. 18-2s-7w.
S.D. 1,780 ft.

MILLER COUNTY

Ed Donohue's No. 2 Beck, Sec. 33-15-26.
W.O.S.R. 2,941 ft.

Duluth-Ark. Oil Co.'s No. 4 Beck, SE cor. SE SW Sec. 34-15-26.
Fishing for D.S. 2,928 ft.

M. D. K. Fitzwater's No. 1 E. H. Beck, 150 ft. N and E, SW cor. NW SW Sec. 34-15-26.
Sidetracking D.S. 2,915 ft.

Fitzwater et al's No. 1 Norson, SW cor. SE SW Sec. 20-15-27.
S.D. 3,177 ft.

King Oil Corp.'s No. 1 C. H. Schroder, 200 ft. N, 330 ft. E, SW cor. SW NE Sec. 24-14-28.
S.D. 3,167 ft.

King Oil Corp.'s No. 1 Anderson, 350 ft. E. 200 ft. S, NW cor. SW NE Sec. 16-14-27.
S.D. 2,050 ft.

A. C. Roan's No. 1 Frost Est., 150 ft. N and W, SE cor. SE SW Sec. 8-15-26.
Set 10-in. 120 ft.

Lee Timberlake's No. 1 Frost Est., 330 ft. N and E, SW cor. SW SE Sec. 27-15-26.
S.W. and abnd. 2,993 ft.

NEVADA COUNTY

Carnett et al's No. 1 Floyd Munin, C SW Sec. 16-14-22.
S.D. 50 ft.

OUACHITA COUNTY

F. A. Book et al's No. 1 Arnold, Sec. 24-15-16.
S.D. 2,032 ft.

Kraft Oil Corp.'s No. 1 Rath & Cartier, 330 ft. S and E, NW cor. SW SW Sec. 32-13-17.
S.D. 1,852 ft.

Chas. Steele et al's No. 1 Myar Est., 330 ft. N and W, SE cor. SW SE Sec. 16-13-18.
Drlg. 50 ft.

SEVIER COUNTY

Pendleton & Vaughn's No. 1 Harrison Est., 265 ft. S, 30 ft. W, CEL Sec. 34-9-30.
Set 10-in. 100 ft.; set 6-in. 1,155 ft.; S.D.; W.O.

UNION COUNTY

Alice-Sidney Oil Co.'s No. 2-B E. F. Gregory, 330 ft. N and E, SW cor. NW SW Sec. 10-11-14.
W.O.S.R. 3,386 ft.

J. E. Crosbie, Inc.'s No. 1 W. E. Gregory, 330 ft. S and E, NW cor. NE Sec. 15-17-14.
T.A. 3,502 ft.

J. E. Crosbie, Inc.'s No. 1 Warren, 330 ft. S and W, NE cor. SW SW Sec. 10-17-14.
P.B. from 3,342 ft.

Gardy Drlg. Co.'s No. 1 Craig, Sec. 35-17-15.
S.D.; W.O. 2,211 ft.

Gulf Ref. Co.'s No. 49 L. Werner, 4,620 ft. N, 50 ft. E, SW cor. Sec. 5-16-16.
Drlg. 4,840 ft.

Reuter Oil Co.'s No. 2 Vines, NW cor. SW SE Sec. 29-18-14.
D.D. to 2,216 ft.; W.O.S.R.

H. L. Hunt's No. 15 E. F. Gregory, 330 ft. N and W, SE cor. Sec. 10-17-14.
Drlg. 6,552 ft.

H. L. Hunt's No. 18 E. F. Gregory, 330 ft. N and E, SW cor. Sec. 11-17-14.
Derrick.

Mrs. R. K. Jones et al's No. 1 Davis, 330 ft. N and W, SE cor. NW NW Sec. 28-16-14.
Set 7-in. 2,746 ft.; T.D. 2,765 ft.

Lion Oil Ref. Co.'s No. 6 H. L. Rowland, 330 ft. S and W, NE cor. Sec. 16-17-14.
T.A. 3,427 ft.

Marine Oil Co.'s No. 4-E Thompson, 330 ft. S and W, NE cor. NW NE Sec. 10-18-13.
Drlg. 3,402 ft.

Joe Modisette et al's No. 1 D. S. Sturdevant, 330 ft. N and W, SE cor. Sec. 6-18-13.
S.D. 4,016 ft.

C. E. Murdock's No. 1 R. Pumphrey, C SW NW NE Sec. 11-17-14.
Derrick.

Reuter Oil Co., Inc.'s No. 1 J. L. Kinard, 330 ft. S and E, NW cor. SE NW Sec. 32-15-14.
Pumping 2,189 ft.; no gauge.

Earl Patterson's No. 1 C. L. Smith, 1,130 ft. S, 550 ft. E, NW cor. Sec. 29-17-14.
Skidded over; set 10-in. 142 ft.

Urbana-Union Oil Co.'s No. 1 U. S. M., 330 ft. S and E, NW cor. E½ SW Sec. 34-17-13.
Coring 3,520 ft.

MISSISSIPPI

AMITE COUNTY

Mineral Resources, Inc.'s No. 1 Anderson C NE NW Sec. 14-3n-3e.
S.D. 550 ft.

BOLIVAR COUNTY

White & Jones' No. 1 Ballou, SE SE NW Sec. 17-24n-7w.
S.D. 20 ft.

CLARKE COUNTY

L. Beckwith et al's No. 1 Long Bell Lbr. Co., 538 ft. S, 125 ft. W of C Sec. 10-2n-16e.
Rigging up.

Clarke County Oil Co.'s No. 1 Dora Butler C SW SW Sec. 15-2n-16e.
Set 10-in. 63 ft.

HARRISON COUNTY

Big Ridge Oil Co.'s No. 1 Hinzin, NE Sec. 13-7s-10w.
S.D.; W.O. 1,100 ft.

HINDS COUNTY

Bob Weaver's No. 1 T. Russell & Oparka, C NW SW NE Sec. 26-6n-1e.
Set 5 3/16-in. 2,440 ft.

JONES COUNTY

Snow-Black Pet. Co.'s No. 1 Fox, 400 ft. N. 750 ft. W, SE cor. SE SW Sec. 30-7n-13w.
D.S. stuck 4,050 ft.

LAUDERDALE COUNTY

Bob Dalton's No. 1 Bounds, Sec. 34-7n-15e
Drlg. 1,535 ft.

MONROE COUNTY

P. J. McAlpine's No. 1 Frank Rye, Sec. 15-15s-17w.
S.D. 2,910 ft.

P. J. McAlpine's No. 1 Crook, 1,090 ft. S 90 ft. W, NE cor. Sec. 15-13s-13w.
Drlg. 2,285 ft.

WALTHALL COUNTY

Mutual O. & G. Co.'s No. 1 Boyd, SW cor SW SE Sec. 24-2n-9e.
Partly rigged up and S.D.

WARREN COUNTY

H. W. Elliott et al's No. 2 R. L. Parker, 780 ft. E, 1,570 ft. S, NW cor. Sec. 14-14n-1e.
Set 4½-in. 1,600 ft.

WASHINGTON COUNTY

Perkins & Dees' No. 1 Lee, 1,500 ft. E, 50 ft. N, SW cor. Sec. 33-15n-3w.
Set 10-in. 300 ft. and S.D.

WINSTON COUNTY

Jack Vale et al's No. 1 Moody, 713 ft. N 667 ft. E, SW cor. NW SW Sec. 3-12n-14e
S.D. 960 ft.

La.-Ark. Proven Fields

NORTH LOUISIANA

CADDO—RODESSA

United Gas. Pub. Ser. Co.'s No. 1 Fosque Unit, 1,320 ft. N and E, SW cor. Sec. 1-23-16.
Comp.; gauged 71,800,000 ft. gas 5,950 ft.

United Gas Pub. Ser. Co.'s No. 1 Johnson Unit, 1,245 ft. S, 1,365 ft. W, NE cor Sec. 26-23-16.
Drlg. 5,246 ft.

SABINE PARISH—ZWOLLE

Alexander & Crane's No. 1 Fogman, SE cor N½ SW NE Sec. 18-7-11.
Set 6-in. 2,378 ft.

Ivan A. Allen's No. 1 La. Long Leaf, 330 ft. N and W, SE cor. NW SE Sec. 12-7-11.
S.D. 2,120 ft.

H. C. Maulding's No. 1 Davis, 350 ft. N and W, SE cor. NE NE Sec. 2-7-11.
Rigging up.

K. C. Peterson et al's No. 1 Bowman-Hicks 330 ft. S and E, NW cor. SW NW Sec. 2-7-9.
Derrick down.

Tex.-La.-Ark. Oil Co.'s No. 1 Pickering Lbr. Co., Sec. 2-3-12.
S.D. 2,742 ft.

EAST TEXAS (BORDER COUNTIES)

HARRISON COUNTY

R. C. Payne et al's No. 1 Lowery, E. D Spain Sur.
P.B. to 3,524 ft.

MARION COUNTY

Ed S. Holman's No. 1 Henderson, R. Bennington Sur.
P.B. to 2,443 ft.

PANOLA COUNTY

R. A. Graddy's No. 1 M. J. McCormick, J. McAdams Sur.
Moving in rig.

George Hudson et al's No. 1 J. F. Nail, C. McGeary Sur.
Set 8-in. 40 ft.; fishing for core bbl. at 2,345 ft.

Geo. Le Grand's No. 1 P. J. Wardleigh, A. Thompson Sur.
Set 10-in. 62 ft.

R. W. Price's No. 1 Crawford, J. A. Williams Sur.
Set 10-in. 64 ft.

Fred Stovall Drlg. Co.'s No. 1 H. D. Ivey P. Martin H.R.S.
S.D. for csg. 1,980 ft.

SHELBY COUNTY

Cliff Stovall's No. 1 Pickering Lbr. Co., C H. Patterson Sur.
S.D.; rig repair, 1,485 ft.

O. P. Bush, trustee's No. 1 Pickering Lbr Co., P. W. Harvey Sur.
S.D. 730 ft.

ALABAMA

COVINGTON COUNTY

Geometer Prod. Corp.'s No. 1 Culbreath, SW cor. SW NE Sec. 8-2n-14e.
Reaming 3,885 ft.

HOUSTON COUNTY

Rice O. & G. Co.'s No. 1 Oakley est., SE cor. NW SW Sec. 9-3n-29e.
S.D.; W.O. 2,506 ft.

LAMAR COUNTY

DeSoto O. & G. Corp.'s No. 1 Gardner, Sec. 23-15s-16w.
S.D. 4,182 ft.

WALTON COUNTY—FLORIDA

Geometer Oil Corp.'s No. 2 Walton Land & Timber Co., Sec. 10-1s-19w.
Drlg. core tests on block; R.U. and S.D.

Oklahoma Wildcats

(Continued from Page 101)

025 ft.; 275 ft. wtr. in hole; P.B. to 3,882 ft.; W.O.C.S.

OKLAHOMA COUNTY

W. H. Atkinson et al's No. 1 Reed, NE cor. Sec. 4-12-2w.
Drlg. below 6,500 ft.

Anderson & Kerr et al's No. 1 Linn, SW NW Sec. 17-14-2w.
Second Wilcox 6,344-73 ft.; T.D.; D.&A.

Gypsy Oil Co.'s No. 1 Shock, NW SW SW Sec. 2-14-3w.
Drlg. 4,455 ft.

Sinclair Prairie O. & G. Co.'s No. 1 Corbett, NE NW NE Sec. 17-13-3w.
R.U. rotary.

Slick-Urschel Oil Co. et al's No. 1 Owen, SE cor. Sec. 19-13-2w.
R.U. rotary.

OSAGE COUNTY

Peters Pet. Co. and Norbla Oil Co.'s No. 1, SW cor. Sec. 15-25-5.
S.D. at 3,134 ft.

PAWNEE COUNTY

Trees Oil Co.'s No. 1 Susan Wedd, C SE SE Sec. 27-24-6.
Drlg. 750 ft.

PAYNE COUNTY

Marathon Oil Co.'s No. 1 Potts, C SW SW Sec. 27-19-2.
Top Arbuckle 5,085 ft.; T.D. 5,116 ft.; P.B. to 4,550 ft.; set 6-in. 4,489 ft.; drilled plug and got wtr.; P.B. to 4,510 ft.; H. F.W.

PITTSBURG COUNTY

McAllister Pet. Corp. et al's No. 1 Chunn, C SE NW Sec. 29-4-14.
T.D. 1,536 ft.; pipe collapsed; S.D.

P. H. Gray et al's No. 1 Lee, NW SE Sec. 12-5-12.
T.D. 1,210 ft.; fishing tools.

PONTOTOC COUNTY

E. M. Blanchard's No. 1 Crabtree, NE SE NE Sec. 27-3-6.
S.D. 2,920 ft.

Philip Boyle's No. 1 McCracken, NE NW NW Sec. 31-5-4.
Belle City 1,675 ft.; drlg. 1,889 ft.

Charles E. Carter's No. 1 Wood, NW SW SE Sec. 5-4-3.
S.D. 2,070 ft.

L. Cooper's (Crabtree) No. 1 Chandler, NE SE SW Sec. 4-5-6.
Drlg. 1,669 ft.

Continental Oil Co.'s No. 1 McCarty, C SW NW Sec. 12-1-7e.
Location.

Crabb-Craw Oil Co.'s No. 1-A Breco, SE NE SW Sec. 3-4-6.
Sand 1,106-18 ft.; pumped 10 bbls. in 24 hrs.; S.D.

W. A. Delaney et al's No. 1 Fulsome, SE NE Sec. 35-4-6.
Location.

Fleetborn Oil Corp.'s No. 1 Oliver, NE NW SE Sec. 21-4-5.
Viola 1,804 ft.; Bromide 1,895 ft.; sand 2,158 ft.; dry; McLish 2,067 ft.; T.D. 2,229 ft.; dry.

Mudge O. & G. Co.'s No. 1 Clampett, SW NW NW Sec. 10-2-6.
S.D. 915 ft.

Paramount Oil Co.'s No. 1 Graham, SW SE SW Sec. 13-1-7.
600 ft. wtr. in hole from second Bromide sand at 3,288-98 ft.; top lime 3,357 ft.; sand 3,405-08 ft.; sand 3,473-78 ft.; H.F. W.; S.D.

Gillett & Kroeger's No. 1 Robbins, NE SE Sec. 31-1-4.
Machine.

Gillette & Kroeger's No. 1 Duver, NW SE Sec. 36-1n-6e.
T.D. 1,247 ft.; S.D.

Southern Oil Co.'s No. 1 Walker, NW NW SW Sec. 11-4-6.
T.D. 1,275 ft.; caving; P.B. to 1,175 ft. and pumped 20 bbls. oil, 12 hrs.; sand 1,160-69 ft.; show oil.

POTTAWATOMIE COUNTY

C. W. James et al's No. 1 Neal, C NW SE SW Sec. 4-5-3.
Wilcox 4,175-4,212 ft., T.D.; H.F.W.; P.B. to 2,739 ft. and ripped 8-in. csg. 2,690-2,700 ft.; H.F.W.; P.B.

Howard Sherman et al's No. 1 Wingo, NE NW SE Sec. 32-10-5.
Simpson Dolomite 4,340 ft.; T.D. 4,361 ft.; good show oil; cmtg. 7-in. csg. at 4,300 ft.

C. W. James et al's No. 1 Neal, C NW SE SW Sec. 4-5-3.
Wilcox 4,175-4,212 ft.; H.F.W.; P.B. to 2,600-2,700 ft.; swabbed 80 bbls. oil in 5 hrs.

PUSHMATHA COUNTY

Wm. Ungerman et al's No. 1 Misner, SE SW SW Sec. 35-3s-18.

Drlg. 2,950 ft.; H.F.W.

SEMINOLE COUNTY

Ray Dorris and J. T. Hall's No. 1 Dorris. SE SE SW Sec. 31-10-7.
Sand 520-60 ft.; H.F.W.; S.D. 608 ft.

Crabtree Drlg. Co.'s No. 1 Chandler, NE SE SW Sec. 4-5-6.
S.D. 110 ft.

Verser & Clay et al's No. 1 Thomas, NE SE NW Sec. 1-6-6.
S.D. at 2,302 ft.

Wofford Drlg. Co. et al's No. 1 Abbott, NE cor. Sec. 33-8-7.
Rig only.

Wofford Drlg. Co. et al's No. 1 Thomas, NW SE Sec. 8-6-7.
Wilcox 3,945-47 ft., T.D.; flowed 245 bbls. oil in 24 hrs.; D.D. to 3,950 ft.; flowed 655 bbls. oil by heads in 12 hrs.

TEXAS COUNTY (PANHANDLE)

Ben F. Ash et al's No. 1 Guymon Townsite, C NE SE Sec. 30-3n-15e; (Cimarron Meridian).
T.D. 2,420 ft.; fishing for drill pipe.

WASHITA COUNTY

Okla.-Midwestern Oil Co.'s No. 1 Dock, SW cor. Sec. 21-8-15w.
T.D. 3,430 ft.; lost tools in hole; rig rebuilt; S.D.

Anadarko Basin Oil Co.'s No. 1 Wolf. NE SW Sec. 23-9-17w.
Rigged up and S.D.

L. P. McWhirter's No. 1 fee, SW cor. Sec. 34-8n-19w.
Drlg. 175 ft.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Keaton et al's (Brookshire) No. 1 Rowland, NW NE NE Sec. 18-3-10.
H.F.W. 3,844 ft.; P.B. 757 ft.; treated with acid.

Clark et al's No. 1 Morrison, SE cor. Sec. 32-1-14.
S.D. at 80 ft.

Malernee et al's No. 1 D. O. K. Land Co., C SE SE Sec. 36-2s-13.
S.D. 3,115 ft.

H. W. Sears et al's No. 1 Downing, SE NW Sec. 17-1s-14.
Location.

BRYAN COUNTY

C. B. Welch's No. 1 Collins, NE NE Sec. 19-8s-8e.
S.D. 570 ft.

Trio Oil Co.'s No. 1 Gibert, SW NE SW Sec. 25-8s-7.
Drlg. 440 ft.

CARTER COUNTY

Waco Turner's No. 1 Munson, NE NW NE Sec. 35-5s-2w.
S.D. for wtr. at 2,384 ft.

Carter Oil Co.'s No. 1 Carter-Williams, SW NE SW Sec. 27-2s-3w (7,000-ft. test).
9-in. csg. 4,909 ft.; Hunton lime 4,915-91 ft.; bailed dry; no show of oil or gas.

CHOCTAW COUNTY

Burns et al's No. 1 Hallum, NE NW NW Sec. 4-7s-20.
Rigging up.

COMANCHE COUNTY

H. W. Baker's No. 1 Miller, SE SW SE NE Sec. 22-2-13w.
S.D. 120 ft.

Oscar Jones' No. 1-A Sheets, NE SW Sec. 26-3-10w.
Machine.

Henry Rosenthal et al's No. 1 Au-che-re-ah, NW NW NW Sec. 5-1n-9w.
Drlg. 1,700 ft.

F. F. Stevens' No. 1 Green, SE SW Sec. 2-1-13w.
Drlg. lime 1,527 ft.

Helden & Taylor's No. 2 Crutcher, C NE Sec. 11-1n-12w.
S.D. at 860 ft.

HARMON COUNTY

Jud Leath et al's No. 1 McConnell, NW cor. Sec. 23-3-24w.
Rigged up and S.D.

Wilson & Walker's No. 1 Wilhelm, SE cor. Sec. 30-4-24w.
Spud and S.D.

GREER COUNTY

D. E. Whatley et al's No. 1 Hamilton, NW SE Sec. 25-4-24w.
Cellar.

JACKSON COUNTY

Associated Oil Co.'s No. 1 Harrell, NE SW Sec. 13-1-21w.
T.D. 1,240 ft.; S.D.

J. G. Buel et al's No. 1 Kizziar, SE SE NE Sec. 2-3n-22w.
Drlg. shale 1,445 ft.

Burke-Greis Oil Co.'s No. 1 Millbrant, SW NW SW Sec. 31-3-19w.
Location.

Burk Royalty Co.'s No. 1 Gore, SE NW SE Sec. 3-1s-20w.
S.D. at 1,909 ft.

A. H. Emenheiser's No. 1 Morrell, SE SW SE Sec. 17-3n-21w.
S.D. 910 ft.

Golden & Cochran's No. 1 Duncan, NE cor. Sec. 34-2n-21w.
Granite wash 1,990-95 ft.; dry; drlg. 2,-250 ft.

Gypsy Oil Co.'s No. 1 Boucher, NW SW SW Sec. 32-1-19w.
Granite wash 1,129-43 ft.; dry; drlg. 1,-331 ft.

Gypsy Oil Co.'s No. 1 Stokes, SE NW SW Sec. 11-1-20w.
Lime 1,709-11 ft.; T.D. 1,722 ft.; S.D.

Jack Kilgore's No. 1 Wooldridge, SW SW NE Sec. 15-3n-21w.
Granite wash 2,118-25 ft.; wtr.; drlg. 2,-160 ft.

Loper et al's No. 1 Conrad, NE cor. Sec. 35-1s-19w.
Drlg. 1,320 ft.

Marshall & Burnham's No. 1 Hess, NE SW NE Sec. 27-1s-20w.
Drlg. 330 ft.

Palo Duro Oil Co.'s No. 1 Balum, SW SW SE Sec. 16-2-21w.
Drlg. 1,620 ft.

Triangle Oil Co.'s No. 1 Fox, C E½ W½ NW Sec. 11-3n-20w.
T.D. 600 ft.; fishing tools.

Whatley & Whatley's No. 1 Holt, NW SW SE Sec. 20-1n-20w.
S.D. 1,430 ft.

JEFFERSON COUNTY

Gypsy Oil Co.'s No. 1 James, SW SE SE Sec. 30-4s-6w.
Drlg. 780 ft.

JOHNSTON COUNTY

W. A. Delaney et al's No. 1 Diamond, NW NE SE Sec. 5-1s-8.
Drlg. 2,100 ft.

LOVE COUNTY

Amerada and Stanolind's No. 1 W. & D., NW SE SE Sec. 27-6s-2e.
T.D. 1,872 ft.; crooked hole; may skid rig for new hole.

MARSHALL COUNTY

Jess Cook et al's No. 1 May, NE NW Sec. 12-8s-5.
Drlg. 75 ft.

Paul Robb's No. 1 Vittetoe, C NE SE Sec. 11-5s-4e.
Top Sylvan shale 5,405 ft.; drlg. 5,461 ft.

McCURTAIN COUNTY

J. V. Scrivener et al's No. 1, NE SW SW Sec. 24-6s-21.
S.D. 820 ft.

MURRAY COUNTY

Equitable O. & G. Co.'s No. 1 Baer, SW NW NW Sec. 21-1s-3e.
Drlg. lime 1,010 ft.

Equitable O. & G. Co.'s No. 1 Ferguson, NE NE SW Sec. 36-1s-3.
Sylvan shale 223 ft.; drlg. 435 ft.

Manahan et al's No. 1 Ward, NE SE NW Sec. 18-1s-3; (Wilcox sand test).
Top McLish 1,774 ft.; dry sand 1,910-16 ft.; show oil 1,983-90 ft.; wtr. 2,058-2,110 ft.; D.&A.

STEPHENS COUNTY

Wm. Angle et al's No. 1 Cooper, NE NW NW Sec. 23-2-7w.
T.D 3,406 ft.; shut down.

J. W. Madison's No. 1 Tussey, SW SE NW Sec. 24-1n-4w.
Rig down, drill pipe in hole: T.D. 3,320 ft.

TILLMAN COUNTY

J. G. Buell et al's No. 1 Haught, SE NE Sec. 22-1-16w.
Drlg. 568 ft.

Cockburn & Boose's No. 1 Nichols, SE cor. Sec. 28-2s-19w.
T.D. 1,394 ft.; fishing tools.

Gulf Coast Wildcats

(Continued from Page 98)

Commonwealth Oil Co.'s No. 1 Nichols, 150 ft. out of E cor. of Lot No. 2, H. N. Little Sur.
10-in. csg. 900 ft.

Texas Co.'s No. 2 Gulf Coast Home Co., 347 ft. S, 441 ft. W from NE cor. of Lot 38, H.T.&B. Sur. No. 2-B.
Rigging up.

Bowles & Borsodi's No. 2 Norvell Investment Co., C of Lot 57, H.&T.C. Sur.
T.D. 5,692 ft.; running screen.

J. W. Sorrells' No. 1 Swift, Blk. 21, Abst. 318, H. N. Little Sur.
Derrick.

Sterling O. & R. Co.'s No. 1 W. A. Gamble, 300 ft. from E line and center N and S of Lot 78, E. Little Sur.
T.D. 6,004 ft.; P.B. 3,300 ft.; prepare to sidetrack.

Texas Co.'s No. 2 C. P. Dawson, 247.5 ft. S, 449.9 ft. W of NE cor. Lot No. 58, H. T.&B. Sur. No. 23.
16-in. csg. 47 ft.; drlg. shale and shells 1,155 ft.

Texas Co.'s No. 14-B Belcher, 660 ft. S 42 deg. W from No. 9-B Belcher, H. N. Little Sur.
Location.

Texas Co.'s No. 1 O. W. Halligan, center of Lot 27, H.T.&B. Sur. No. 23.
Location.

Texas Co.'s No. 2 O. W. Halligan, center of Lot 26, H.T.&B. Sur. No. 23.
Location.

Texas Co.'s No. 3 O. L. Rash, 920 ft. S, 48 deg. E and 330 ft. S, 42 deg. W from N cor. of Lot No. 22, T. Spraggin Sur.
Location.

Texas Co.'s No. 2-A H. J. Wray, 330 ft. from N line and 990 ft. W of E line of lease.
16-in. csg. 33 ft.; T.D. 650 ft.

Texas Co.'s No. 4 A.R.G.G.H., 442 ft. W and 247.5 ft. S of NE cor. Lot 36, H.T.&B. Sur., Sec. 23.
Drlg. shale and lime 3,233 ft.

Texas Co.'s No. 11-A Belcher, 990 ft. W and 330 ft. N of SE cor. of H. N. Little Sur.
Drlg. shale and lime 4,679 ft.

Texas Co.'s No. 9 Houston Oil Field Assn., 263 ft. N of SW line and 330 ft. NW of SE line, Blk. 1, A.C.H.&B. Sur.
T.D. 4,011 ft.; 7-inch csg. 3,990 ft.

Texas Co.'s No. 1 C. P. Dawson, 2,475 ft. S, 441.9 ft. W of NE cor. of Lot 59, H.T.&B. Sur. No. 23.
T.D. 5,645 ft.; 7-in. csg. 5,627 ft.; waiting on orders.

Texas Co.'s No. 17 Houston Oil Fields Assn., 244 ft. S, 244 ft. W, from NE cor. of Lot 1, A.C.H.&B. Sur. No. 91.
Location.

Texas Co.'s No. 16 Houston Oil Fields Assn., 247 ft. S, 440 ft. E from NW cor. of Lot 19, A.C.H.&B. Sur., No. 91.
Location.

Texas Co.'s No. 2 Dawson, 247 ft. S, 241 ft. W of NE cor. of Lot 58, H.T.&B. Sur. No. 23.
Location.

Texas Co.'s No. 2 Dawson, 247 ft. S, 441 ft. W of NE cor. Lot 48, H.T.&B. Sur. No. 23. I.P. 16 bbls. per hour ¼-in. choke; T.D. 5,641 ft.

Texas Co.'s No. 3 F. Lieder, 247.5 ft. S and 247.5 ft. E of NW cor. of Lot No. 3, A.C.H.&B. Sur.
Drlg. shale and lime 3,710 ft.

Trumba Oil Co.'s (J. M. Campbell) No. 1 H. McCauley, 150 ft. each way out of NE cor. of W 5 acres of Lot No. 2, A.C. H.&B. Sur. No. 91.
Location.

Turnbull & Irwin's No. 1 Hart, center of Lot 10, H.T.&B. Sur. No. 24.
Derrick.

Whittle Oil Co.'s No. 1 Duke, 320 ft. W of E line, center N and S Lot 18, H.T.&B. Sur. No. 23.
Location.

PLEDGER—BRAZORIA COUNTY

Humble O. & R. Co.'s No. 1 T. L. Smith, 1,283 ft. NE from W cor. of 88.56-ac. lease, thence 887 ft. SE at R/A, D. McNeel Sur.
Rig up.

FORT LAVACA—CHIHOUN COUNTY

Texas Co.'s No. 1 I. Blardone, 1,650 ft. from E line and 1,350 ft. from N line of lease, Samuel Shupe Sur.
Drlg. sand and shale 600 ft.

Texas Co.'s No. 1 R. Duelberg, 1,565 ft. NE along S line from SW cor. of lease and 390 ft. N at R/A, M. Sanches Sur.
10-inch csg. 1,324 ft.; T.D. 1,335 ft.

Texas Co.'s No. 1 J. A. Marten, 1,700 ft. SW along N line from NE cor. and 1,400 ft. at R/A in SE direction, Florentina Garcia League Sur.
Rig up.

Texas Co.'s No. 1 H. C. Wehmeyer, 900 ft. NW along W line from upper SW cor. of lease, and at R/A NE 1,213 ft., M. Sanches Sur.
10-in. csg. 1,332 ft.; T.D. 2,210 ft.

Halliburton Oil Prod. Co.'s No. 1 Bruton, 660 ft. due E of Steinberger Pet. Co.'s No. 1 Ishofner, M. Sanches Sur.
Prepare to spud.

STRATTON RIDGE—BRAZORIA COUNTY

Amerada Pet. Corp.'s No. 1 Seider & State, 225 ft. due N of No. 3.
Fishing 4,755 ft.

Thompson Drlg. Co.'s No. 1 Seaburn Est., Austin & Williams one-half league.
T.D. 4,770 ft.; stuck drill pipe at 4,300 ft.; sidetracking.

ANA HUAC—CHAMBERS COUNTY

Humble O. & R. Co.'s No. 1 Broussard, 466 ft. from W line, 466 ft. from N line, Sec. 63, H.&T.C. Sur.
Drlg. shale 2,775 ft.

Humble O. & R. Co.'s No. 1 J. J. Clark, 466 ft. N of S line and 466 ft. W of E line of H.&T.C. Sur., Sec. 64.
Drlg. shale 5,538 ft.

Humble O. & R. Co.'s No. 2 Middleton, 466 ft. out of NE cor. of H.&T.C. Sur., Sec. 64. Derrick.

BARBERS HILL—CHAMBERS COUNTY

Humble O. & R. Co.'s No. 8-B Kirby, 300 ft. N of No. 2, 100 ft. W of E line, Henry Griffith League.
T.D. 5,040 ft.; I.P. 18 bbls. per hour through ¼-in. choke.

McAlbert Oil Co.'s No. 3-B Heggins, 50 ft. S of N line and 50 ft. E of W line.
Drlg. shale 3,878 ft.

Mills Bennett Prod. Co.'s No. 2-C Barber, 93 ft. N of No. 1, 100 ft. E of W line. Derrick.

Sun Oil Co.'s No. 1 Higgins, 50 ft. S of N line, 50 ft. W of E line.
Drlg. shale 619 ft.

Sun Oil Co.'s No. 11 Chambers County, half way between and in line with Nos. 9 and 10.
Drlg. rock 1,670 ft.

Texas Gulf Prod. Co.'s No. 3 Fitz, 450 ft. E of W line, 75 ft. N of S line.
Drlg. salt 1,989 ft.

Texas Gulf Prod. Co.'s No. 12-A Kirby, 613 ft. N of S line, 85 ft. W of E line, W of Humble O. & R. Co.'s No. 8-B Kirby.
Drlg. salt 3,234 ft.

Texas Gulf Prod. Co.'s No. 2 Morgan Fitzgerald, 400 ft. N of S line, C of Strip No. 3.
Pulling tubing to perforate csg. 4,568 ft.

Texas Gulf Prod. Co.'s No. 2 Fitz-Meadows, 231 ft. S of N line, 50 ft. W of E line of Lot of T. S. Fitz lot.
Drlg. salt 2,076 ft.

Mount Lee Oil Co.'s No. 28 Chambers County, 50 ft. N of S line, direct offset to Sun's No. 10 Chambers County, Wm. Bloodgood Sur.
Drlg. salt 3,625 ft.

Yount Lee Oil Co.'s No. 30 Chambers County School Land, 50 ft. N of S line, direct offset to Sun Oil Co.'s No. 11.
Derrick.

Yount Lee Oil Co.'s No. 7 Phillips (W.O.), 100 ft. W of No. 8, Wm. Bloodgood Sur.
Top oil sand 5,468 ft.; T.D. 5,562 ft.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 19 Mays, 400 ft. SE of No. 11, 400 ft. SW of No. 14, E. H. R. Wallace Sur.
10¾-in. csg. 355 ft.

BIG CREEK—FORT BEND COUNTY

Trans-State Oil Co.'s No. 2 Ahlers, 85 ft. N of Gulf Stream, Inc.'s No. 1 Ahlers, Michael Young Sur.
T.D. 2,685 ft.; 7-in. csg. 2,636 ft.; blew out making est. 8,000 bbls. per day.

BOLING—FORT BEND COUNTY

Irwin Larsen et al's No. 1 J. R. Farmer, 100 ft. NW and 100 ft. SW from E cor. of 125-ac. lease, James Scott Sur.
Location.

Midland Oil Co.'s No. 1 P. F. Coulter, 150 ft. from S line, 4,174 ft. from W line of 100-ac. tract, Miller League No. 2.
Set screen; T.D. 4,186 ft.

Navarro Oil Co.'s No. 2 H. R. Farmer, 363 ft. from SW line and 160 ft. from SE line of Humble O. & R. Co.'s lease, James Scott Sur.
Location.

Trans-State Oil Co.'s No. 1 Dipple, 480 ft. from NW and 347 ft. from SW lines of 33-ac. tract, E flank of dome.
Abnd. 4,395 ft.

Yew Development Co.'s No. 1 C. E. Farmer, 600 ft. S and 325 ft. W of the NE cor. of 50-ac. lease, James Scott Sur.
Location.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 42 Moore, 845 ft. S, 305 ft. W of SW cor. of E.M.G. Co. Sur.
Drlg. rock 2,189 ft.

Gulf Prod. Co.'s No. 43 Moore, 350 ft. E along S line of SW cor. of E.M.&G. Co. Sur. and 740 ft. N at, R/A to said line of lease, 350 ft. E of No. 3 Moore.
Drlg. lime 3,639 ft.

THOMPSON—FORT BEND COUNTY

Gulf Prod. Co.'s No. 2 S. B. Gehr, 340 ft. from S line, 571 ft. E from Gulf Prod. Co.'s No. 1 S. B. Gehr, S. Kennedy Sur.
Drlg. sand and lime 3,845 ft.

Gulf Prod. Co.'s No. 3 Hammerstram, 1,386 ft. from S line, and 2,436 ft. from W line of lease, S. Kennedy Sur.
Drlg. sand and lime 4,583 ft.

Humble O. & R. Co.'s No. 12 Booth, 281 ft. from N line of lease, 1,550 ft. W of No. 11, John Rabb Sur.
Drlg. shale 4,175 ft.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 24 Cade.
T.D. 6,063 ft.; cutting and pulling liner.

Yount Lee Oil Co.'s No. 16 Smith.
Drlg. shale 5,810 ft.

Yount Lee Oil Co.'s No. 1 Acon & Hughes, 85 ft. E of No. 1 Pabst, on a 3.82-ac. tract, M. Dunman Sur.
Rigup.

Yount Lee Oil Co.'s No. 1-A Lockhart, 85 ft. W of No. 1 Pabste, on a 5.23-ac. tract, M. Dunman Sur.
Location.

Yount Lee Oil Co.'s No. 45 Cade.
T.D. 5,211 ft.; 7-in. csg. 5,186 ft.

Yount Lee Oil Co.'s No. 1-A Gordon-Viterbo, 122 ft. E of W line, 326 ft. S of N line of Lot 1, Martin Dunman Sur.
Drlg. shale 4,010 ft.

Yount Lee Oil Co.'s No. 1 Loustalbot, 300 ft. from N line, 121 ft. from E line of Lot No. 3, offset to No. 2 Stewart, Martin Dunman Sur.
Drlg. shale 3,924 ft.

DICKINSON—GALVESTON COUNTY

Humble O. & R. Co.'s No. 3-A Stewart, 338 ft. S of easterly NE cor., 2,016 ft. W of easterly E line, 425 ft. S of S line of Bayou, John Sellers Sur.
Drlg. shale 3,112 ft.

Humble O. & R. Co.'s No. 2-A Maco Stewart, 3,324 ft. S along E line of S bank of Bayou and 566 ft. W of E line at R/A, John Sellers Sur.
Rig up.

Humble O. & R. Co.'s No. 1 Schaper, C 8½ of Blk. 15, or on line between Lots 3 and 4 and center N and S, W. K. Wilson Sur. Abnd. 9,234 ft.

Humble O. & R. Co.'s No. 1 A. F. Danielson, C of 20-ac. tract, Lots 5 and 6, C. A. Anderson Subd. of Lot 15, of the Righter Subd., John Sellers Sur.
T.D. 9,360 ft.; P.B. 9,140 ft.; I.P. 27 bbls. per hour; T.P. 1,200 lbs.; C.P. 1,600 lbs.

Turnbull & Irwin's No. 1 J. Piazza, 460 ft. W and 250 ft. S of Humble O. & R. Co.'s No. 1 Jones, J. S. Sherman Sur.
Drlg. shale 2,560 ft.

ARRIOLA—HARDIN COUNTY

Houston Oil Co.'s No. 6-X fee, 400 ft. SE of No. 4-X, 500 ft SE of No. 5-X fee.
Drlg. shale 1,920 ft.

Republic Prod. Co's No. 11 fee, E. Arriola Sur.
Drlg. shale 3,750 ft.

BATSON—HARDIN COUNTY

Danciger Oil & Refining Co.'s No. 1 Tom Wynne, 250 ft. S, 150 ft. W of Deering's No. 1 Cruse.
Rig up.

Sterling O. & R. Co.'s No. 1 Doucette, 566 ft. N from NE cor. of Nunn tract thence 565 ft. E at R/A, Wm. Donoho Sur.
Drlg. sandy shale 4,310 ft.

John Deering's No. 1 Bullock, 1,000 ft. N, 17 ft. E of middle line of 30-ac. tract, Bullock tract, Dondo Sur.
No report.

John Deering's No. 2 Cruse, 200 ft. E and 50 ft. S of No. 1 Cruse, W. Donaho Sur.
Rig up.

John Deering's No. 3 Hooks, 200 ft. E of Cruse and Hooks' dividing line and 50 ft. S of straight line from No. 1 Cruse and No. 2 Hooks, W. Donoho Sur.
Drlg. shale 4,210 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 11-N Jordit, 300 ft. due W of No. 11-R Jordit.
Clearing location.

SOUR LAKE—HARDIN COUNTY

Arlis Pet. Co.'s No. 1 Harkan and Langham.
Dig pits.

Texas Co.'s No. 319 fee, S 44 deg., 42 ft., W 300 ft. from No. 265 and 400 ft. from No. 318.
7-in. csg. 1,832 ft.; T.D. 2,032 ft.

HUMBLE—HARRIS COUNTY

Sun Oil Co.'s No. 74 River, 275 ft. E of No. 73 in 292-ac. tract, Robert Dunman Sur.
T.D. 1,231 ft.; 7-in. csg. 1,215 ft.

Sun Oil Co.'s No. 73 River, 2,757 ft. N of S line and 175 ft. E of W line of 292-ac. lease, Robert Dunman Sur.
T.D. 1,167 ft.; I.P. 54 bbls. per day pumping.

Sun Oil Co.'s No. 29 Bender.
Coring oil sand 2,792 ft.

Texas Co.'s No. 31 Humble, 300 ft. due south of No. 28.
Rig up.

PIERCE JUNCTION—HARRIS COUNTY

Gulf Prod. Co.'s No. 39 Taylor, 1,729 ft. S, 75 ft. W of NE cor. of J. Hampton Sur.
Drlg. shale 5,054 ft.

Gulf Prod. Co.'s No. 21 Taylor.
Drlg. sand 3,894 ft.

Hamil & Smith's No. 1 House, J. Hamilton Sur.
Top sand 6,482 ft.; T.D. 6,486 ft.; reaming to set csg.

Rio Bravo Oil Co.'s No. 27-A Settegast, 877 ft. S, 553 ft. W of NE cor. of Settegast "A" tract, James Hamilton Sur.
Standing 5,526 ft.

Rio Bravo Oil Corp.'s No. 9-A Settegast, 1,575 ft. N line, 350 ft. E line NE cor. "A" lease, J. A. Kopman Sur.
T.D. 5,411 ft.; standing.

MYKAWA—HARRIS COUNTY

Alpha Pet. Co.'s No. 1 W. T. Carter, Lbr. & Bldg. Co., Blas Herrera Sur., 1,320 ft.

from E line, 200 ft. from S line of 320-ac. tract.
Cmtd. surface csg.; drlg. shale 1,200 ft.
H. C. Aiken's No. 1 Waggoner, F. J. Rothas Sur.
Bldg. derrick.

TOMBALL—HARRIS COUNTY

Continental Oil Co.'s No. 3 Petrich, J. House Sur.
T.D. 5,575 ft.; 7-in. csg. 5,557 ft.
Humble O. & R. Co.'s No. 1 Schultz, 550 ft. from S line, 356 ft. from W line of 42.05-ac. tract, J. House Sur.
Coring sand 5,514 ft.
Humble O. & R. Co.'s No. 1 Tom Ball townsite, Unit No. 1, 25 ft. from SW line, 25 ft. from NE line of Lot No. 1, Blk. 22, Wm. Hurd Sur.
T.D. 5,608 ft.; P.B. 5,570 ft.; I.P. 115,000 ft. of gas.
Humble O. & R. Co.'s No. 5-A Quilter, 980 ft. from S line, 466 ft. from W line of 300-ac. tract, A. Senchel Sur.
Top sand 5,546 ft.; T.D. 5,558 ft.; 7-in. csg. 5,553 ft.; I.P. 515 bbls. in 24 hrs. on ¼-in. choke.
Humble O. & R. Co.'s No. 1 Michel, 510 ft. from N line, 466 ft. from W line of lease, Wm. Hurd Sur.
Drlg. shale 5,343 ft.
Humble O. & R. Co.'s No. 1 C. H. Mueller, 549 ft. from S line of lease, 560 ft. W of SE cor. of M. J. Kuehn tract, T. A. Duclose Sur.
T.D. 5,553 ft.
Humble O. & R. Co.'s No. 8 Reid, 1,770 ft. from W line of lease, G. Goodrich Sur.
Cmtd. csg.; T.D. 5,540 ft.
Texas Co.'s No. 3 Ziegler, 1,449 ft. E of W line and 446 ft. S of N line of lease, 930 ft. E of No. 1.
Drlg. shale and sand 4,818 ft.

KITTRELL—HOUSTON AND WALKER COUNTIES

Humble O. & R. Co.'s No. 9 Shaw, 660 ft. NE of No. 4, 330 ft. from NE line, C. McEllis Sur.
Abnd. 2,254 ft.
Sun Oil Co.'s No. 3 Huffman, C. McEllis Sur.
Comp.; no gauge.

VANDERBILT—JACKSON COUNTY

Imperator Oil Co.'s No. 1 Dutton, S C of Lot No. 11, Blk. 25, 450 ft. S of R.R. and 1,350 ft. W line of townsite, Ray Musquis Sur.
Rigged up and S.D.
Turman Oil Co.'s No. 1 T. H. Miller, 150 ft. each way out of E 50 ac. of Miller 100-ac. tract in Ray Musquis Sur.
Rigging up.

BIG HILL—JEFFERSON COUNTY

Yount Lee Oil Co.'s No. 1-B Pipkin & Davis, 2,225 ft. from E line and 2,385 ft. from N line of survey, Wm. McFadden Sur.
Rig up.

FANNETT—JEFFERSON COUNTY

Gulf Prod. Co.'s No. 8 Burrell, 750 ft. N from SW cor. of C. W. Burrell's 232-ac. tract and 100 ft E at R/A.
Drlg. shale 4,243 ft.

CLEVELAND—LIBERTY COUNTY

Black Gold Pet. Oil Corp.'s No. 2 R. D. McDonald, 466 ft. W of most westerly E line and 466 ft. N of most northerly S line of survey, 933 ft. W of Gulf Prod. Co.'s No. 7-C Kirby Lbr. Co., T. Devers Sur.
Derrick.
Gulf Prod. Co.'s No. 9-C Kirby Lbr. Co., 1,967 ft. N, 1,400 ft. E from the NE cor. of J. S. Eldridge Sur. in the John Pleasant Sur.
Moving in rig.
William J. Colegrove et al's No. 1 State School Land & Dev. Co., 446 ft. from W line and 170 ft. from S line of survey, Clayton Harper Sur.
Location.

ESPERSON—LIBERTY COUNTY

General Crude Oil Co.'s No. 21 Esperson.
Sand 4,858 ft.
General Crude Oil Co.'s No. 1 W. D. Kay, Malcolm Duncan Sur., 1,537 ft. along N
T.D. 6,655 ft.; P.B. to 5,900 ft.; reaming at 6,537 ft.
General Crude Oil Co.'s No. 10 Davis, 2,000 ft. from E line, 660 ft. from S line of D. Kokernut Sur.
T.D. 5,830 ft.; tested S.W. from 5,812-22 ft.

HANKAMER—LIBERTY COUNTY

Cretaceous Oil Co.'s No. 2 S. E. Ezzell, 150 ft. S of N line, 100 ft. W of E line of Ezzell's 75-ac. tract, Levi Barrow Sur.
T.D. 2,582 ft.; 7-in. csg. 2,561 ft.
Eljean Oil Co.'s No. 1 Ezzell, 1,325 ft. from N, 150 ft. from E line of Ezzell 175-ac. tract.
Drlg. shale 1,625 ft.
Gulf Prod. Co.'s No. 1-B W. L. Bingle, 159 ft. E along S line of H.&T.C. Sur., thence 378 ft.
Derrick.
Gulf Prod. Co.'s No. 1 Hankomer, 359 ft. W, 420 ft. N of SE corner of George Stingler Survey.
Drlg. sandy shale 4,325 ft.
Jones Drlg. Co.'s No. 1 Ezzell, 1,050 ft. S of N line, 150 ft. W of E line of Levi Barrow Sur.
Drlg. shale 820 ft.; 10-in. csg. 195 ft.
Will Stroxier et al's No. 1 Ezzell, 700 ft. N of S line, 150 ft. W of E line of Levi Barrow Sur.
Derrick.

HULL—LIBERTY COUNTY

G. R. Brown and S. F. Bashara's No. 1 David Hannah, Jesse Devore league, 300 ft. S line, 150 ft. E line, 42-ac. Gulf tract
Derrick.
Republic Prod. Co.'s No. 145 Dolbear, Jesse Devore.
Abnd. 2,734 ft.
Republic Prod. Co.'s No. 155 Dolbear, Jesse Devore Sur.
Drlg. shale 2,432 ft.
Gulf Prod. Co.'s No. 18 Boyt, E offset to Wilson Broark Oil Co.'s No. 1 Barrow, in Levi Barrow Sur.
Location.
Gulf Prod. Co.'s No. 107 Phoenix, 400 ft. W of No. 106, and 400 ft. N of No. 103, J. Devore Sur.
Drlg. shale 3,575 ft.
Texas Co.'s No. 3 Barrow.
6⅝-in. csg. 3,819 ft.; S.D. 4,355 ft.; T.A.
Texas Co.'s No. 6 Barrow, 333 ft. S and 150 ft. W from NE cor. of tract, J. Devore Sur.
Coring sand showing oil 4,850 ft.

MARKHAM—MATAGORDA COUNTY

Superior O. & G. Co.'s No. 1 Hawk, W. H. Gainor Sur., west flank of dome.
T.D. 4,213 ft.; 7-in. csg. 4,185 ft.; cored oil sand 4,200-10 ft.; flowed salt wtr. cut with oil and gas; waiting on orders.

MOSS BLUFF—LIBERTY COUNTY

Gulf Coast Sulphur Co.'s No. 1 McManus, 558 ft. from E, 1,650 ft. from N line of W. A. tract, B. M. Spinks Sur.
Location.

CONROE—MONTGOMERY COUNTY

Humble O. & R. Co.'s No. 1 Bailey, 1,100 ft. SW from NE cor. of Alex McCowan Sur. and 466 ft. from S line R. Kuykendahl Sur.
Drlg. lime 4,883 ft.
Sun Oil Co.'s No. 32 Foster.
9⅝-in. csg. 1,365 ft.
Sun Oil Co.'s No. 3 McDonald.
T.D. 5,090 ft.

SPLENDORA—MONTGOMERY COUNTY

Bryce McCandless et al's No. 1 Texas Long Leaf Lbr. Co., 330 ft. from N and E lines of the W½ of Blk. No. 8, Walker County School Land Sur.
Derrick.

ORANGE—ORANGE COUNTY

Trio Oil Co.'s No. 1 D. S. Comier, 69 ft. W of E line and 39 ft. S of N line of 6.83-ac tract in W. M. Dyson Sur.
S.D. 2,720 ft.
Quintana Oil Co.'s No. 2-B O'Connor, 500 ft. from W line, 260 ft. from S line of M. L. White Sur.
Abnd. 9,923 ft.

PORT NECHES—ORANGE COUNTY

Texas Co.'s No. 3 Orange National Bank 750 ft. S of N line and 295 ft. E of W line of lease, Jacob Beaumont Sur.
T.D. 6,377 ft.; sidetracked at 4,602 ft.; T.D. 4,792 ft.
Texas Co.'s No. 4-B Polk, 750 ft. S and 1,450 ft. W from NE cor. of lease, Jacob Beaumont Sur.
Location.
Texas Co.'s No. 5-B Polk, 750 ft. S and 850 ft. W from NE cor. of lease, Jacob Beaumont Sur.
Bldg. foundations.
Texas Co.'s No. 6-B Polk, 750 ft. S and 250 ft. W from NE cor. of lease, Jacob Beaumont Sur.
Location.

LIVINGSTON—POLK COUNTY

Gem Oil Co.'s No. 6 Davis & Holmes, 662 ft. from W and 662 ft. from N line of survey, A. Viesca Sur.
Rig up.
Gem Oil Co.'s No. 7 Davis & Holmes, 1,050 ft. from E line, 800 ft. from N line of lease, A. Viesca Sur.
10¾-in. csg. 420 ft.
Johnson & Johnson's No. 1 I. B. Munson, 330 ft. from S and E lines of 26.12-ac. tract, A. Viesca Sur.
Drlg. shale 3,524 ft.
Werby and Refugio Oil Corp.'s No. 5 Dick & Failing, 330 ft. E of W line of tract, 550 ft. N of No. 1, A. Viesca Sur.
T.D. 4,286 ft.; 7-in. csg. 4,266 ft.

SAN FELIPE—WALLER COUNTY

Buck Oil Co.'s No. 1 Vaughn, 660 ft. due E of Seaporton Co.'s No. 1 Vaughn, J. McFarland Sur.
Location.

GRETA—REFUGIO COUNTY

Hewitt & Daugherty, 466 ft. from N line, 506 ft. from E line of Hardwick Sur.
Drlg. shale 4,315 ft.
Hewitt & Daugherty's No. 12 Lambert.
Rig up.
Humble O. & R. Co.'s No. 19 Heard, 466 ft. from N line, 466 ft. from W line of John Peoples Sur.
7-in. csg. at 4,377 ft.; R.U. to pump.
Humble O. & S. Co.'s No. 1 Marberry, 4,558 ft. from S line, 466 ft. from W line of John Denn Sur.
Reaming 2,757 ft.
Stanolind O. & G. Co.'s No. 5 O'Connor.
Drlg. shale 4,420 ft.; I.P. 75 bbls. per hr.
Standard Oil Co. of Kansas.
7-in. csg. 4,351 ft.; T.D. 4,371 ft.

REFUGIO—REFUGIO COUNTY

Houston Oil Co.'s No. 21 P. H. Rooke, Thomas Mullen grant, 990 ft. from E line, 697 ft. SW from No. 18.
T.D. 4,917 ft.; I.P. 20 bbls. per hour through ¼-in. choke.
Houston Oil Co.'s No. 22 P. H. Rooke, 660 ft. from No. 19, 690 ft. from No. 20.
Moving in material.
Houston Oil Co.'s No. 23 Rooke, 660 ft. W of No. 19.
Set surface csg. 934 ft.; W.O.C.
United Gas Co.'s No. 18 Lambert.
T.D. 3,518 ft.; I.P. 12 bbls. per hour; T.P. 190 lbs.; C.P. 300 lbs.
United Gas Co.'s No. 19 Lambert.
T.D. 3,505 ft.; made salt wtr.; to deepen.
United Gas Co.'s No. 17 Lambert.
T.D. 4,381 ft.; comp.; no gauge.

CLAY CREEK—WASHINGTON COUNTY

Sun Oil Co.'s No. 1 Smith.
T.D. 1,608 ft.; comp.; no gauge.

COLETO CREEK—VICTORIA COUNTY

American Liberty Oil Co.'s No. 4 Prybil, 660 ft. SW of No. 3, 330 ft. from SE line, 1,320 ft. from SW line of 121-ac. tract, Manchola Sur.
Tested 21 thribbles of oil on drill stem test; T.D. 2,866 ft.
A. Plummer's No. 3 Zimmer, 330 ft. each way out of N cor. of lease, being out of N cor. of 117-ac. tract, Manchola Sur.
T.D. 2,866 ft.; 7-in. csg. 2,839 ft.

McFADDIN-O'CONNOR DISTRICTS—VICTORIA AND REFUGIO COUNTIES

Texas Co.'s No. 9 McFaddin, 1,350 ft. N, 2 deg., 45 ft. S from No. 2.
13⅜-in. csg. 824 ft.; drlg. shale and lime
Drlg. shale and lime 2,983 ft.
Houston Oil Co.'s No. 1 Fagan, 330 ft. from Guadalupe River on the Fagan Island, F. and J. M. Rodrigues Sur., SW of McFaddin Field.
Location.

LOUISE—WHARTON COUNTY

Pure Oil Co.'s No. 1 John Macha, 318 ft. from NW line and from SE line of F. Walnut Sur., and 467 ft. from NE line of 101.53-ac. lease, M.&C. Sur. No. 25.
Derrick.
Pure Oil Co.'s No. 1 G. Wharton Est., 1,497 ft. from SW line and 318 ft. from SE line of F. Walnut Sur., Abst. A-35.
7-in. csg. 5,129 ft.; T.D. 5,152 ft.
Pure Oil Co.'s No. 3 Stewart, 1,000 ft. SW and 318.25 ft. SE from N cor. of W. L. Stewart's 160-ac. tract, Morris and Cummings Sur. No. 25.
Location.

BAY JUNOP—TERREBONNE PARISH

Texas Co.'s No. 6-B State, 458 ft. S, 498 ft. E of NW cor. of Sec. 34-21s-14e.
Fishing 7,161 ft.

CALLIOU ISLAND—TERREBONNE PARISH

Texas Co.'s No. 17 Calliou Island, Sec. 20-23-23.
Drlg. shale 4,039 ft.
Texas Co.'s No. 18 Calliou Island, 2,177 ft. E and 1,385 ft. S of NW cor. Sec. 24-21s-16e.
Derrick.

SOUTH LOUISIANA FIELDS

BLACK BAYOU—CAMERON PARISH

Shell Pet. Corp.'s No. 22 Watkins, 2,220 ft. W and 1,340 ft. S of NE cor. Sec. 18-12s-12w.
Bldg. foundations.
Shell Pet. Corp.'s No. 21 Watkins, 1,570 ft. E of NW cor. Sec. 17-12s-13w.
Drlg. salt 1,942 ft.
Shell Pet. Corp.'s No. 3 State.
Cleaning out 6,154 ft.

BOSCO—ACADIA AND ST. LANDRY PARISHES

Oswego Oil Co.'s No. 2 Moulton, Sec. 34-8s-3e.
13⅜-in. csg. at 1,335 ft.; drlg. sand and Coring sand 7,891 ft.
Superior Oil Prod. Co.'s No. 9 Larcade, 2,755.83 ft. N, 1,936.23 ft. W of SE cor. of Sec. 34-8s-3e.
13⅜-in. csg. 1,257 ft.
Superior Oil Prod. Co.'s No. 1 S. Martinez, 3,673.1 ft. S, 2,033 ft. E of NW cor. Sec. 35.
Rig up.
Superior Oil Prod. Co.'s No. 2 Le Blanc, 1,693 ft. S, 937.09 ft. W of NE cor. Sec. 33-8s-3e.
Rig up.
Superior Oil Prod. Co.'s No. 1 Mire, "A" Lease, 3,611 ft. N, 1,895 ft. W of SE cor. of Sec. 33-8s-3w.
Tested salt wtr.; abnd. 8,785 ft.
Superior Oil Prod. Co.'s No. 2 E. Mire, 1,039.07 ft. S, 916.82 ft. W of NE cor. Sec 33-8s-3e.
Location.
Superior Oil Prod. Co.'s No. 2 Prejean, 300 ft. S, 490 ft. W of NE cor. of SW¼ Sec. 34-8s-3e.
Drlg. sand 7,727 ft.
Superior Oil Prod. Co.'s No. 2 Malancon, 2,665 ft. S, 1,757 ft. W of NE cor. of Sec. 33-8s-3e.
T.D. 8,685 ft.; I.P. 483 bbls. in 24 hrs. through 11/64-in. choke; C.P. 2,200 lbs.; T.P. 900 lbs.
Superior Oil Prod. Co.'s No. 1 Iseringhauser, 1,395 ft. E, 330 ft. N of SW cor. of N½ of NW¼ of Sec. 35-8s-3e.
T.D. 8,687 ft.; 7-in. csg. 8,661 ft.
Superior Oil Prod. Co.'s No. 2 C. B. Hernandez, 300 ft. N, 300 ft. W of SE cor. of NW¼ Sec. 34-8s-3e.
Drlg. shale 7,061 ft.
Superior Oil Prod. Co.'s No. 3 C. B. Hernandez, 250 ft. N, 1,016 ft. W of SE cor. of SW¼ Sec. 34-8s-3e.
Drlg. shale 7,380 ft.
Superior Oil Prod. Co.'s No. 7 Hernandez, 1,291.1 ft. N, 667.5 ft. E of SW cor. of NW¼ Sec. 34-8s-3e.
Drlg. shale and lime 7,540 ft.
Superior Oil Prod. Co.'s No. "O" Hernandez, 3,358 ft. S, 683 ft. E of NW cor. Sec. 35-8s-3e.
Drlg. shale 5,839 ft.
Superior Oil Prod. Co.'s No. 3 Malancon, 400 ft. S, 330 ft. E of NW cor. of SW¼ Sec. 34-8s-3e.
Drlg. shale 4,855 ft.
Superior Oil Prod. Co.'s No. 2 Falls, 330 ft. N, 1,796 ft. W of SE cor. of Sec. 27-8s-3e.
13⅜-in. csg. at 1,235 ft.; T.D. 7,844 ft.; cutting and pulling csg.

DARROW—ASCENSION PARISH

Humble O. & R. Co.'s No. 5 Community, 328 ft. SW of NE line of section, 200 ft. at R/A to east bank of river, Sec. 33-10s-2e.
Drlg. 3,445 ft.
Humble O. & R. Co.'s No. 4 Community, 4,825 ft. from NE cor. and 288 ft. S of N line at R/A, Sec. 33-10s-2w.
Digging cellar.

CAMERON MEADOWS—CAMERON PAR.

Burton-Sutton Oil Co.'s No. 5 School Land, 150 ft. N of S line and 300 ft. E of No. 2, Sec. 16-14s-13w.
Drlg. shale 1,210 ft. (corrected).
Burton-Sutton Oil Co.'s No. 4 School Land, 1,891 ft. W and 150 ft. N of SE cor. of Sec. 16-14s13w.
Derrick.
Magnolia Pet. Co.'s No. 11 Cameron Meadows.
Drlg. lime 1,900 ft.
Texas Co.'s No. 1 Miami Corp.
T.D. 9,331 ft.; P.B. 4,004 ft.; I.P. 482 bbls. of fluid daily, 65 per cent salt wtr.
Texas Oil Co.'s No. 11 Calcasieu Lake.
Drlg. shale 1,516 ft.

HOCTAW DOME—IBERVILLE PARISH

Standard Oil Co.'s No. 1 Myrtle, 900 ft. N and 550 ft. W of SE cor. of SW¼ of Sec. 52-9s-11e.
Driving piling.
Standard Oil Co.'s No. 5 Gay, 2,450 ft. S and 425 ft. E of NW cor. of NE Sec. 32-9s-11e.
Drlg. shale 4,003 ft.

DOG LAKE—TERREBONNE PARISH

Texas Co.'s No. 17 State.
Drlg. shale 2,134 ft.
Texas Co.'s No. 8 Louisiana Land & Exploration.
T.D. 5,569 ft.
Texas Co.'s No. 11 State, 150 ft. N and 2,474 ft. W, SE cor. Sec. 31-21s-16e.
Drlg. shale 3,001 ft.

FOUR ISLE—TERREBONNE PARISH

Texas Co.'s No. 8 Four Isle.
T.D. 5,569 ft.; I.P. 2,408 bbls. per day on ¾-in. choke.

GARDEN ISLAND BAY—TERREBONNE PARISH

Texas Co.'s No. 13 State, 3,391 ft. S and 1,-704 ft. W of NE cor. Sec. 107-23-23.
Rig up.
Texas Co.'s No. 15 Garden Island.
Drlg. shale 3,750 ft.

GUEYDAN—VERMILLION PARISH

Pure Oil Co.'s No. 6, Alliance Trust, 667 ft. E, 1,787 ft. S line of lease, Sec. 34-11s-1w.
Coring sand 8,575 ft.; slight oil show.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 4 Hansen, 1,680 ft. W and 780 ft. N of SE cor. Sec. 11-12s-10w.
Abnd.; T.D. 7,369 ft.
Gulf Prod. Co.'s No. 17 Erwin.
Drlg. shale 5,611 ft.
Gulf Prod. Co.'s No. 14-B State, 610 ft. S, 1,866 ft. E of NE cor. Sec. 13-12s-10w.
Derrick.
Sutton Oil Co.'s No. 2 Portier, 717 ft. S and 50 ft. W of NW cor. SW¼ SE¼ Sec. 23-12s-10w.
Rig up.
Texas Co.'s No. 14 State, 500 ft. SE of No. 13, Sec. 13-12s-10w.
Derrick.
Yount Lee Oil Co.'s No. 13 Gulf Land, Sec. 14-12s-10w.
Drlg. shale 3,720 ft.
Yount Lee Oil Co.'s No. 1-A Gulf Land, 2,000 ft. S and 50 ft. E of the NW cor of Sec. 22-12-10.
Rig up.

NEW IBERIA—IBERIA PARISH

Harrison & Abercrombie's No. 3 Schwing, 500 ft. N and 50 ft. E of No. 2, Sec. 24-12s-5w.
Drlg. shale 4,528 ft.
Iberia Oil Corp. and Y. D. Spell's No. 2 Bernard, 150 ft. E of No. 1, Sec. 54-12s-7e.
S.D. 3,846 ft.; salt.
Iberia Oil Co. and Y. D. Spell's No. 3
Drlg. shale 4,738 ft.

IOWA—CALCASIEU AND JEFF DAVIS

Shell Pet. Corp.'s No. 2 Ardoin.
Redrlg. hole 7,028 ft.
Shell Pet. Corp.'s No. 14 Heyd, 330 ft. N, 1,819 ft. W of SE cor. of NE¼ Sec. 13.
T.D. 6,702 ft.; 7-in. csg. 6,623 ft.; C.O. to rerun tubing; prepare to test.
Shell Pet. Corp.'s No. 15 Heyd, Sec. 13-9s-7w.
T.D. 4,457 ft.; tested oil on drill stem test.
Shell Pet. Corp.'s No. 4 Adrain, 1,650 ft. S, 330 ft. E of NW cor. of lease.
10¾-in. csg. 1,321 ft.

JENNINGS—ACADIA PARISH

Absure-Bolyard Oil Co.'s No. 2 Clement.
S.D. 1,910 ft.
Port City Oil Co.'s No. 3 Syndicate.
T.D. 6,311 ft.
Yount Lee Oil Co.'s No. 7 Housiere-Latrielle.
Drlg. shale 7,459 ft.
Yount Lee Oil Co.'s No. 14 Housierre-Latrielle, 260 ft. N of No. 13, Sec. 47-9s-2w.
T.D. 7,804 ft.; I.P. 323 bbls. per day on ¼-in. choke.

LAKE BARRE—TERREBONNE PARISH

Texas Co.'s No. 32 Lake Barre.
Drlg. lime 1,701 ft.
Texas Co.'s No. 19 Lake Barre.
T.D. 345 ft.
Texas Co.'s No. 25 Lake Barre.
S.D. 1,820 ft.
Texas Co.'s No. 14 Lake Barre.
T.D. 2,999 ft.; waiting on cement; D.S. stuck 2,999 ft.; P.B.
Texas Co.'s No. 15 Lake Barre.
Drlg. shale 3,812 ft.

LAKE PELTO—TERREBONNE PARISH

Texas Co.'s No. 12 Lake Pelto.
Drlg. shale 5,461 ft.
Whitstone O. & G. Co.'s No. 1 Buckley, 300 ft. S and E of NW cor. SW SW Sec. 35-19s-16e.
T.D. 3,390 ft.; P.B. to 3,053 ft.; S.D.

LAKE HERMITAGE—PLAQUEMINES PARISH

Humble O. & R. Co.'s No. 3 Lafourche Levee Basin 1,725.
Drlg. shale 3,106 ft.

LAKE WASHINGTON—PLAQUEMINES PARISH

Humble O. & R. Co.'s No. 23 Cockrell-Moran, 650 ft. N and 21 deg. 30 min. E of No. 3 in Twp. 20s-26e.
Drlg. sand 4,124 ft.

LEESVILLE—LAFOURCHE PARISH

Gulf Prod. Co.'s No. 6 Allen Lane, Sec. 26-21s-22e.
Derrick.
Gulf Prod. Co.'s No. 12 Bernaro, Sec. 26-21s-22e.
Location.
Gulf Prod. Co.'s No. 10 Bernard, 1,833 ft. E, 958 ft. S of NW cor. Sec. 26-21s-22e.
Derrick.
Emerald Pet. Co.'s No. 10 State, west bank, 200 ft. S of well No. 1.
Location.
Emerald Pet. Co.'s No. 11 State, east bank.

227 ft. N of well No. 1.
Location.
Emerald Pet. Co.'s No. 12 State, east bank. 350 ft. S of well No. 1.
Location.
Lincoln Oil Co.'s No. 6 State.
S.D. 3,226 ft.
Lincoln Oil Co.'s No. 5 State.
Location.
Texas Co.'s No. 31 Leesville.
Drlg. shale 3,643 ft.
Texas Co.'s No. 27 Leesville.
Derrick.

LOCKPORT—CALCASIEU PARISH

Magnolia Pet. Co.'s No. 7 Farquar (W.O.).
T.D. 6,667 ft.; I.P. 408 bbls. per day through 14/64-in. choke.
Magnolia Pet. Co.'s No. 14 Miller (W.O.).
Abnd.; T.D. 4,389 ft.
Union Sulphur Co.'s No. 6 Moss, located between No. 2 and No. 5 (W.O.).
No report.

STARKS—CALCASIEU PARISH

Gulf Prod. Co.'s No. 37 Lutcher-Moore, 250 ft. E and 775 ft. N of SW cor. of Sec. 19-19s-12w.
Drlg. gumbo 907 ft.

PORT BARRE—ST. LANDRY PARISH

Gulf Prod. Co.'s No. 12 Wilson Cochran. Sec. 4-5s-6s.
Rig up.
Port Barre Oil Co.'s No. 2 Sybil, 3,080 ft. N easterly along section line, thence 55 ft. at R/A to the east, Sec. 20-6s-5e.
Drlg. sand 3,458 ft.

ROANOKE—JEFFERSON DAVIS PARISH

Humble O. & R. Co.'s No. 1 Nelson Thomas, 880 ft. W of No. 2 Kratzer, 440 ft. N and W of SE cor. of 200-ac. tract.
Rig up.
Humble O. & R. Co.'s No. 2-B Devilbiss, 1,127 ft. W of No. 1-B, 440 ft. S of N line of 8⅓ of Sec. 11-9s-4w.
Drlg. shale 3,911 ft.
Humble O. & R. Co.'s No. 1 Clayton, 3,080 ft. S and 440 ft. W, NE cor. Sec. 10-9s-4w.
Rig up.
Shell Pet. Corp.'s No. 1 Jarnigan, 330 ft. E. 660 ft. S, NW cor. Sec. 12-9s-4w.
Drlg. shale 7,595 ft.
Shell Pet. Corp.'s No. 3 Kratzer, 1,320 ft. E and 440 ft. N of SW cor. of lease.
T.D. 7,597 ft.; recovered 30 bbls. of oil on drill stem test.
Shell Pet. Corp.'s No. 1-B Kratzer, 660 ft. N, 330 ft. E of SW cor. of SW¼ Sec. 1-9s-4w.
Rig up.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 12 Yount Lee Oil Co., 300 ft. S of No. 11, in line with Nos. 9 and 11, Sec. 12-13s-3w.
8⅝-in. csg. 8,140 ft.; T.D. 8,196 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 810 fee, 1,955 ft. S, 440 ft. E of NW cor. Sec. 29-9s-10w.
Moving in rig.
Union Sulphur Co.'s No. 1 Noble (W.O.).
Drlg. shale and lime 5,063 ft.
Union Sulphur Co.'s No. 3 Kelly.
Drlg. lime 4,497 ft.
Union Sulphur Co.'s No. 809 fee.
Drlg. rock 2,614 ft.

WHITE CASTLE—IBERVILLE PARISH

Shell Pet. Corp.'s No. 1 White Castle Shingle Co., 1,320 ft. W, 100 ft. S from NE cor of lease.
Drlg. 2,600 ft.; T.D. 6,072 ft., salt; set whipstock 2,310 ft.
Shell Pet. Corp.'s No. 1 Adams, 2,340 ft. N, 100 ft. E of SW cor. of lease.
Drlg. shale 6,919 ft.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Arkansas Fuel Oil Co.'s No. 1 Herman W. Peschel, 990 ft. out of N cor. of 167.5-ac. tract, R. Stolze Sur.
Drlg. shale 3,960 ft.
Deering & Kayser's No. 1 P. A. McClinton, 1,100 ft. from NW line and C NE and SW of 115-ac. tract in Thomas Bell Sur.
Drlg. shale 125 ft.
Paul English et al's No. 1 Felix Guhn, 1,000 ft. S, 360 ft. E from NW cor. of 71-ac. tract, D. Chomel Sur., 1 mile SE of Kinney.
Rig up.

BRAZORIA COUNTY

George Strake's No. 2 Truska, 991 ft. W of No. 1, H.T.&B. Sur., Sec. 7.
S.D. 6,000 ft.
Holt et al's No. 1 Griffith, J. B. Bailey Sur.
Drlg. shale and lime 5,945 ft.
Showers & Moncrief's No. 1 Hughey, 5,500 ft. NW of discovery well, in center of Lot 18, H.T.&B. Sur., Sec. 29, Abst. 293
Location.
Texas Co.'s No. 1 Freeport Sulphur Co., 2,764 ft. N, 1 deg., 40 ft. W and 1,184 ft. S, 88 deg., 20 ft. W of NW cor. of S. F. Austin Sur., Abst. No. 35, being in the Conception Arcola Sur.
Drlg. sandy shale 3,290 ft.
Turnbull & Irwin et al's No. 1 W. and R. H. Allison, 2,200 ft. W, 2,733.5 ft. S from NE cor. of H.T.&B. Sur. No. 79.
Drlg. 20 ft.

CALHOUN COUNTY

Continental Oil Co.'s No. 2 American National Realty Co., 660 ft. from NW line, 660 ft. from NE line of Sec. 6, Blk. C, Pedro Garcia Sur.
Drlg. shale 1,627 ft.

CHAMBERS COUNTY

South Gulf Oil Co.'s No. 1 J. T. White, Luke Brian Sur., 460 ft. from N line, 460 ft. from W line of 47.9-ac. tract.
Rig up.

COLORADO COUNTY

Gulf Prod. Co.'s No. 1 A. R. Milentz, 990 ft. N along E line from SE cor. of 160-ac. lease and 330 ft. W at R/A, I.&G.N.R.R. Co. Sur. No. 23.
Rig up.

FAYETTE COUNTY

Lewis Franklin's No. 1 V. Dybala, center of 75-ac. lease, A. Thompson Sur.
Location.

FORT BEND COUNTY

W. A. Shafer et al's No. 1 V. B. Bertaah, 693 ft. SW of NE line and 1,003 ft. NW of SE line of Sec. 52, H.&T.C. Sur.
S.D. 2,900 ft.
George White et al's No. 1 M. M. Cravins, 1,000 ft. from N, 300 ft. W of SW cor. of survey, B.B.B.&C. Sur. No. 8.
Rig up.

GALVESTON COUNTY

Gillock Pet. Co.'s No. 2 Maco Stewart, 900 ft. N and 150 ft. W of No. 1, Alex Farmer Sur.
T.D. 1,500 ft.; waiting on surface pipe; S.D.

GRIMES COUNTY

Anderson & Kerr Drlg. Co.'s No. 1 R. Lueders, 500 ft. S of N line, 1,200 ft. E of W line of 320-ac. tract and survey, Blake Brantley Sur., 2½ miles SW of Plantersville.
10¾-in. csg. 561 ft.; T.D. 576 ft.
Hubert Holt et al's No. 1 Simon Fuqua 1,200 ft. N of S line and 400 ft. W of E line of 177-ac. lease and survey, Moses Evans Sur.
S.D. 3,080 ft.
Dr. Marshall et al's No. 1-B Todd, 300 ft from E line and 175 ft. from N line of 150-ac. tract in extreme NW cor. of county (25 ft. N of No. 1).
S.D. 2,005 ft.
Patton et al's No. 1 Yeager, 1,000 ft. W of E line, 170 ft. S of N line of 53-ac. tract and survey, A. Ruscoile Sur., NW of Iola Sur.
No report.
Roan et al's No. 1 S. W. Sealy, 3,474 ft. N of S line and 850 ft. E of W line of survey, B. F. Smith Sur., 2 miles SW of Kellum Springs.
Drlg. shale 2,960 ft.

HARDIN COUNTY

Frazier & Greer's No. 1 Sternberger Lbr. Co., 1,325 ft. S and 400 ft. W of the NE cor. of a 115-ac. tract, J. Pearson Sur.
Derrick.

HARRIS COUNTY

T. S. F. Oil Co.'s No. 1 J. B. Hine, Arthur McCormick Sur., Abst. 46.
T.D. 3,524 ft.; derrick blew down; will rebuild and core deeper.
C. C. Foster et al's No. 1 H. K. Johnson 2,000 ft. from S line and C of E and W lines of G.C.&S.F. Sur.
Drilled 25 ft. and S.D.
Johnston & Johnston's No. 1 Fee land, 330 ft. S, 300 ft. E of NW cor. of 20-ac. tract, Sur., Sec. No. 5.
Coring sandy shale 4,333 ft.
W. U. Paul's No. 2 House, 100 ft N of No 1, M. Magruder Sur.
Abandoned.
West Prod. Co.'s No. 1 Woodburn, 1,320 ft. E of W line, 2,145 ft. N of S line of survey, A. Whitlock Sur.
Prepare to spud.

JACKSON COUNTY

A. M. Harris' No. 1 Whitley, 800 ft. out of SE cor. of F. G. Keller Sur.
Location.
Shell Pet. Corp.'s No. 1 W. W. McCrary, 460 ft. out of SE cor. of 50-ac. tract, A. Kountze Sur.
Coring sandy shale and lime 5,617 ft.

JASPER COUNTY

Republic Prod. Co. and Houston Oil Co.'s No. 1 Sabine Tram. Co., 330 ft. out of NW cor. Sec. 71, H.&T.C. Sur.
Drlg. shale 7,124 ft.

JEFFERSON COUNTY

Sun Oil Co.'s No. 1 Hebert & Braussard, 6,890 ft. NW along SW line and 660 ft. NE at right angles to SW line, B. Blackman Sur., Abst. No. 2.
Rig up.

LAVCA COUNTY

L. A. Douglas' No. 1 Fehrenkamp, 600 ft. from W line, 720 ft. from N line of Mitchell Sur.
10-in. csg. 180 ft.; drlg. shale 1,543 ft.

LIBERTY COUNTY

R. M. Bruner et al's No. 1 N. Bell, 150 ft. from N line and 150 ft. from W line of Bell's 187-ac. tract, H.&T.B. Sur. No. 4
Rigging up.
Extension Oil Co.'s No. 1 J. A. Lovett, 380 ft. from E and 600 ft. from S line of lease P. P. Deevers Sur.
S.D. 4,048 ft.
J. W. Frazier et al's No. 2 Lynott & Duffum, 466 ft. from N and E lines of 40-ac. tract in extreme SE part of survey, James Robeson Sur.
Clearing location.
Liberty-Independent Oil Co.'s No. 1 J. M. Neal, 3,550 varas from E line and 500 varas from N line of Samuel Strong Sur
No report.
A. L. Maxwell's No. 1 M. P. Hinecliff, 300 ft. from E line and 1,000 ft. from the N line of survey, H.&T.C. Sur., Sec. 10s.
Drlg. shale 3,290 ft.
Thomas et al's No. 1-A Eicke, 660 ft. from W line and 2,350 ft. from S line of tract in Green Sur.
T.D. 5,047 ft.; 6⅝-in. csg. at 5,029 ft.
Turnbull & Irwin's No. 1 Cox, 1,000 ft. from the E line and 300 ft. from S line of 303.2-ac. lease, F. J. G. Smiley Sur.
Location.

MADISON COUNTY

Madisonville Pet. Co.'s No. 1 Cannon, 660 ft. N of S line, 440 ft. E of W line of 185-ac. tract, J. V. Phillips Sur.
Location.

MATAGORDA COUNTY

Cockburn Oil Co.'s No. 7 Hawkins, 150 ft. NW of No. 6 Hawkins Sur., D. McCarthy Sur.
T.D. 4,811 ft.; stuck drill stem.
Dr. Griffith's No. 1 fee, 3,000 ft. from E line and 3,000 ft. from W line of Wm. H. Bell Sur.
Rigging up and S.D.
Horace M. Smith, Inc.'s No. 1 Wadsworth ranch, 150 ft. out of S cor. of Lot No. 3 Blk. S, R. Fisher Sur.
Encountered salt wtr. sand from 6,199-6,224 ft.; T.D. 6,249 ft.

MONTGOMERY COUNTY

Travis Baker et al's No. 1 Foster Estate, 1,200 ft. E of W line and 700 ft. S of N line of Blk. No. 50, J. M. De La Garza Sur.
Derrick.
Charles B. Gohlson's No. 1 Aaron Parks, 250 ft. from S line, 200 ft. from E line of Parks 139-ac. tract, J. Lindley Sur.
Derrick.
P. & C. Oil Co.'s No. 1 G. B. Rosebury, 466 ft. from N and E lines of 160-ac. tract, A. M. Folks Sur.
Location.
Reynolds Drlg. Co. et al's No. 1 Mrs. Clare B. Stewart, 330 ft. S and E of most easterly inner cor. of 595-ac. tract, John Corner Sur.
S.D. 5,500 ft.
Trans State Oil Co.'s No. 1 Foster, 700 ft. E of W line, 2,000 ft. N of S line, Lot 27.
S.D. 3,240 ft.
Woodard-Smith-Cooper's No. 1 J. V. Scott P. A. B. Wheeler Sur.
Tested salt wtr.; T.D. 3,640 ft.; prepare to plug back.

ORANGE COUNTY

Blue Line Oil Co.'s No. 1 Godwin, Richard Ballew Sur., 300 ft. from E line and 150 ft. from NE line of Godwin 20-ac. tract.
S.D. 2,770 ft.
Ellis Oil Co.'s No. 1 G. W. Pell, 100 ft. from N and 300 ft. from W line of Pell tract in the J. M. Henerie Sur.
No report.
Dick Schwab's No. 1 East Texas Canal Co., 330 ft. from the N and W lines of 234-ac. tract, John Jett Sur.
Location.

POLK COUNTY

Howard Dailey et al's No. 1 Z. B. Knox 1,450 ft. W and 1,920 ft. S of NE cor of F. Chairs Sur., 16 miles NE of Corrigan.
S.D. 60 ft.
J. F. Anderson's No. 1 E. L. Duke (O.W.D D.), 400 ft. from E and 350 ft. from S of SW cor. of P. Michelick 50-ac. lease, Abst 59, P. J. Mineral Sur.
Waiting on a new mud pump; T.D. 5,364 ft.
Humble O. & R. Co.'s No. 1 Texas Long Leaf Lbr. Co., 466 ft. from NE line and 2,250 ft. from the NW line, Sec. 21, A. Viesca Sur.
Moving in rig.
J. W. Leggett et al's No. 1 Bergman, C of 294-ac. tract, or 1,100 ft. W of H.E.&W.T. R.R., J. T. Pinkney Sur.
Rig up.
Dick Schwab's No. 1 Lynch, 330 ft. out of NW cor. of 200-ac. tract in the George Jameson Sur.
Location.
E. A. Thompson's No. 1 Haynes, 990 ft out of NW cor. of 320-ac. tract and survey, J. Whitmire Sur., E of Leggett.
Drlg. shale 4,130 ft.

REFUGIO COUNTY

Cecil Hagen et al's No. 1 Edith Clarkson, 1,736 ft. from N line, 2,820 ft. from E line of J. Coughlin Sur.
Location.
Magnolia Pet. Co.'s No. 1 Woods, 330 ft. from S and W lines of S. Turner Sur.
Coring shale 5,811 ft.

ROBERTSON COUNTY

H. L. Patton's No. 1 H. Ely, located on a 616-ac. tract, A. Manchola Sur.
S.D. 1,671 ft.; made drill stem test; tested 15 thribbles of mud oil with gas.

SAN JACINTO COUNTY

Shell Pet. Corp.'s No. 1 K. Moore, 5,400 ft. from W line, 1,250 ft. from S line of lease, T. F. De Rumayor Sur.
Location.
Ralph Sturam et al's No. 1 R. B. Love et al, 475 ft. S of N line and 2,000 ft. W of E line of 177-ac. tract, Drury McGee Sur.
Moving in rig.

VICTORIA COUNTY

A. I. Ahern's No. 1 Henderson & Pickering, 5,280 ft. from NW line, 330 ft. from NE line of W. M. Rupley Sur.
T.D. 6,018 ft.; flowed 341 bbls. through 3/16-in. choke in 24 hours; T.P. 1,700 lbs.; C.P. 2,300 lbs.
L. A. Gillespie and Superior Oil & Gas Co.'s No. 1 R. W. Brandt, 330 ft. from NE line, 330 ft. from NW line of tract No. 11, Henderson & Pickering Subd., Wm. Rupley Sur.
Location.
L. A. Gillespie and Superior Oil & Gas Co.'s No. 1 John Janis, 330 ft. from SW line of survey and on the SE line of Nancy Dean Sur.
Location.

WALKER COUNTY

Boone Bros.' No. 1-D Texas Long Leaf Lbr. Co., 330 ft. E and 275 ft. N of SW cor. of 112.6-ac. tract, Mary Milsap Sur.
10¾-in. csg. at 373 ft.
S. E. Gray's No. 1 Winsell, 1,200 ft. N and 1,000 ft. E of most southerly S line of survey.
Drlg. 3,413 ft.

WALLER COUNTY

Smith et al's No. 1 J. S. Garrett, 4,840 ft. NW and 325 ft. NE from SE cor. of S. M. Williams Sur., 3 miles N of San Felipe.
Drlg. shale 4,310 ft.; no report.

WHARTON COUNTY

Texas Co.'s No. 1 Pierce Estate, 4,850 ft. S, 34 deg. E and 4,300 ft. N, 56 deg. E from W cor. of Tract 2, I.&G.N. Sur. No. 38. Abnd. 6,546 ft.
Texas Co.'s No. 2 Pierce Estate, 2,425 ft. S, 31 degrees 20 ft. E, 4,400 ft. N, 58 degrees 40 ft. E from W cor. of Pierce Estate Land, I.&G.N.R.R. Sur. No. 39.
Moving in rig.

SOUTH LOUISIANA

ACADIA PARISH

Humble O. & R. Co.'s No. 1 American Rice Mills, 660 ft. S and 1,320 ft. W from NE cor. Sec. 27-10s-1e.
T.D. 9,139 ft.; P.B. 8,429 ft.

AVOYELLES PARISH

Bell Drlg. Co.'s No. 3 Thompson, 450 ft. S, 360 ft. E, NW cor. NE¼ Sec. 11-2s-4e.
Rig up and S.D.
Southern State Pet. Co.'s No. 1 Boyette, 330 ft. N and 330 ft. E of SW cor. Sec. 12-3n-5e.
Drlg. shale 3,710 ft.

BEAUREGARD PARISH

Chew & Kirby's No. 1 Long Bell Lbr. Co., 330 ft. S and W of C of NE¼ Sec. 14-2s-8w.
Drlg. shale 3,210 ft.
Richardson & Martin's No. 1 Southwest Lbr. Location.

CALCASIEU PARISH

Fred Oil Co.'s No. 2 Faisst, 262 ft. E and 83 ft. S of NW cor. SE¼ Sec. 26-8s-10w.
Drlg. shale 1,714 ft.
Fohs Oil Co.'s No. 5 Castle, 660 ft. S of No. 1 Castle.
Drlg. 400 ft.
Nicholas McCaleb's No. 1 Grey, 2,300 ft. S, 1,200 ft. E of NW cor. Sec. 22-8s-12w.
S.D. 850 ft.
Texas Co.'s No. 3 Nickerson, 2,739 ft. N, 3,750 ft. W of SE cor. Sec. 12-10s-8w.
Location.
Texas Co.'s No. 1 Nickerson, 3,139 ft. N and 3,238 ft. W of SE cor. Sec. 12-9s-8w.
T.D. 6,756 ft.; I.P. 20 bbls. through ¼-in. choke.
Texas Co.'s No. 2 Nickerson, 2,304 ft. N, 4,322 ft. W of SE cor. NW Sec. 12-9s-8w.
Location.
Union Sulphur Co.'s No. 2 Reeves-Mayo.
Coring sand, showing oil 6,727 ft.
Union Sulphur Co.'s No. 1 Castle, 326 ft. N and E of NW Sec. 13-9s-8w.
Drlg. water sand 7,804 ft.
Union Sulphur Co.'s No. 1 Buhler, 1,485 ft. N and 425 ft. W of SE cor. Sec. 11-9s-8w.
T.D. 7,888 ft.; P.B. 6,427 ft.
Union Sulphur Co.'s No. 3 Barbe, 396 ft. N and 329 ft. W of SE cor. of NE¼ Sec. 11-9s-8w.
6⅝-in. csg. 6,748 ft.; T.D. 6,756 ft.
Union Sulphur Co.'s No. 2 Castle, 660 ft. E of No. 1 Castle.
T.D. 6,751 ft.; oil sand, to set 6⅝-in. csg.
Union Sulphur Co.'s No. 1 Reeves-Mayo, 650 ft. NE of discovery.
Temp. abnd. 7,305 ft.
Wheeler Oil Corp.'s No. 1 School Lot, 1,700 ft. E, 1,325 ft. N of SW cor. Sec. 16-9s-7w.
Digging pits.

CAMERON PARISH

Magnolia Pet. Co.'s No. 1 J. B. Broussard, 330 ft. E and S, out of NW cor. of the SW¼ of SE¼ of Sec. 13-12s-9w.
13⅜-in. csg. 1,921 ft.; drlg. 2,008 ft.
Steinberger Pet. Co.'s No. 1 Drew, 330 ft. out of NW cor. NE¼ of Sec. 26-10s-11w.
Location.

EAST FELICIANA PARISH

Thompson Creek Oil Co.'s No. 1 Fannie Noland, 2,600 ft. E and 1,580 ft. N of SW cor. Sec. 70.
S.D. 1,480 ft.

IBERIA PARISH

Texas Co.'s No. 1 State Fausse Point.
Drlg. shale 1,960 ft.

JEFFERSON DAVIS PARISH

George W. Strake's No. 1 Calcasieu Natl. Bank, 200 ft. S and E of NW cor. SE NE Sec. 12-9s-6w.
Abnd. 8,148 ft.

JEFFERSON PARISH

Lincoln Oil Co.'s No. 1 Rigaud, Sec. 38-21s-25e.
S.D. 7,039 ft.
Texas Co.'s No. 1 Bayou St. Dennis, 10,987 ft. S, 4,853 ft. E of NW cor. of Twp., Sec. 19-17s-24e.
Drlg. shale 9,275 ft.

LAFOURCHE PARISH

Southern Sulphur Corp.'s No. 1 D. L. Lagraize, 800 ft. E of NW cor. of Lot 7, thence 250 ft. S of Sec. 26-21s-23e.
Spudded and shut down.

PLAQUEMINES PARISH

Venice Corp.'s No. 1 Burras.
S.D. 2,119 ft.

RAPIDES PARISH

J. B. Evers' No. 1 G. Wettermark, 540 ft. S and 520 ft. E, NW cor. NE SW Sec. 35-6n-2e.
Location.
C. D. Loe's No. 1 Barrett, 330 ft. NW of SE line and 330 ft. NE of SW line of Sec. 40-5n-1w.
Abnd. 4,375 ft.
Williams-Terrell & Day's No. 1 Armstrong & Murphy, 286 ft. N and 300 ft. W of SE cor. Sec. 24-5n-1w.
Drlg. shale 2,110 ft.

ST. BERNARD PARISH

Danciger's No. 1 Battles, 836 ft. N, 2,191 ft. W of SE cor. Sec. 135-14s-14e.
T.D. 6,001 ft.
Emerald Oil Co.'s No. 1 Eugenia Land Co., 1,922 ft. S, 1,720 ft. W of NE cor. Sec. 31-13s-15e.
Derrick.

ST. LANDRY PARISH

C. B. Bunte's No. 1 Thistle Waite Lbr. Co., 7,590 ft. W and 1,980 ft. S of NE cor. Sec. 68-5s-4e.
Rig up.

ST. MARTIN PARISH

Texas Co.'s No. 1 State-Plumb Bob, 3,107 ft. E and 2,154 ft. N of SW cor. Sec. 9-4s-7w.
Drlg. shale and lime 6,808 ft.

ST. MARYS PARISH

Black et al's No. 1 Chetti-Manchie Indian Reservation, 330 ft. out of NE cor. of tract.
S.D. 8,501 ft.

TANGIPOHA PARISH

R. A. Conklin's No. 1 Lake Superior Piling Co., 200 ft. W and N of SE cor. Sec. 19-5s-9e.
Coring shale 3,910 ft.

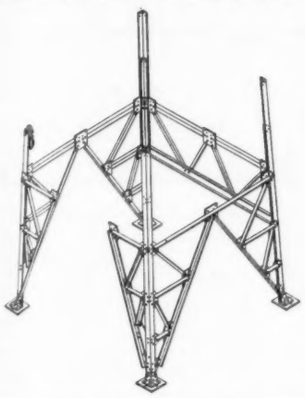
VERMILLION PARISH

Moore Bros.' No. 1 Brussard, 350 ft. S of N line, 350 ft. E of W line, NE cor. Sec. 32-11s-3e.
S.D. 4,056 ft.

NEW AND IMPROVED EQUIPMENT

Slater Putting New Type of Derrick on the Market

Guy P. Slater, Inc., Sand Springs, Okla., announces a new type of angle iron derrick, which is said to be easier to build because of the simplicity of its construction. The derrick minimizes the hazard in erecting as the nature of its construction provides a building gin-pole at



all stages of erection or dismantling, thereby eliminating the danger of carrying a portable gin-pole up and down the derrick.

The derrick legs are of angle iron construction, having a series of inside and outside legs, 12 feet long and overlapping each other 6 feet, forming a continuous leg from bottom to top. With this type of construction, it is asserted, the derrick cannot fail unless practically all the braces in the derrick have become broken or bent; and it will not collapse because of the failure of one bolt or braee.

It has a sturdy top, is easily sorted and warehoused, and is designed for strength and durability.

The derricks are built in heights of 66 to 156 feet, with safe working loads ranging from 191,000 to 1,270,000 pounds, unreinforced. They are made of mild and silicon steel and are painted aluminum.

New Packing for Liquids and Gases Put on Market

Crandall Packing Co., Palmyra, N. Y., has developed an improved packing for sealing liquids and gases which is said to embody a new principle of application with original packings. All forms of this new product are thoroughly impregnated with a special lubrication, built up from strands that first are lubricated and graphited separately, then braided to size.

The packing is made up in six different styles for steam, air, ammonia and oil; for heavy-duty gate and globe valves (two styles); for cold water, oils and general hydraulic service; for steam and heavy-duty piston rods; for boiler-feed pumps.

Liquids cannot penetrate through the packing, according to the manufacturers, and white-metal retaining rings help support and guide rods. The company has branches at 311 Candler Building, Kansas City, Mo., and at 707 Market Street, St. Louis, Mo.

Three new circulars issued by Jenkins Brothers, 80 White Street, New York, are: Form 159, Jenkins regrinding iron body gate valves; Form 160, Jenkins twin-bolt gate valves, and Form 162, Jenkins bronze gate valves. Any one or all are sent on request.

Among the Equipment Houses

The Frick-Reid Supply Corp. has opened a supply store in Hutchinson, Kans., with V. G. White, manager; also a new supply store in Russell, Kans., with Doyne (Kit) Carson, manager. The new district office for Kansas has been opened at 916 Union National Bank Building, Wichita, with L. J. Davis as district sales manager. J. H. Barnard has been transferred from Shreveport, La., as salesman for the Wichita district.

—

The Williamsport Wire Rope Co., Williamsport, Pa., has moved its Houston, Tex., office and warehouse from 1516 Chestnut Street to 1 North Milby Street. Raymond Ford is district sales manager.

—

An addition to the list of warehouse distributors of Enduro Stainless steel is the Gilmore Steel & Supply Co., 825 Folsom Street, San Francisco, Calif., according to N. J. Clarke, vice president in charge of sales for Republic Steel Corp.

—

The Oklahoma City Section of the American Institute of Electrical Engineers recently had as guest lecturer T. F. Peterson, consulting engineer for the American Steel & Wire Co., Worcester, Mass.

—

The White Star Co., Wichita, Kans., has been appointed distributor for the Medart line of transmission equipment.

The Wilson-Snyder Manufacturing Co., Pittsburgh, Pa., has opened a Tulsa office in charge of Robert C. (Bob) Chenoweth, who will handle the sale of pumps for refinery, pipe line and industrial applications. His office is at 405 West First Street, in the Oil Well Supply Co. Building. Oil Well continues as distributor of Wilson-Snyder slush pumps, oil country pumps, and accessories.

—

H. J. French, in charge of alloy steel and iron development for the International Nickel Co., Inc., addressed the Rockford, Ill., chapter of the American Society for Metals April 10, and the Milwaukee chapter April 11.

—

C. C. Morrison has been appointed national representative of the Pittsburgh Equitable Meter Co. and its subsidiary, Merco Nordstrom Valve Co. Mr. Morrison formerly was president of the Pennsylvania Pump Co., Pittsburgh.

—

Horace T. Potts Co., Philadelphia, Pa., has been appointed distributor of seamless stainless steel pipe in that territory by the Babcock & Wilcox Tube Co. It will continue to distribute B&W seamless boiler tubes.

—

Charles Little has been appointed West Texas representative for the Atlas Supply Co., with headquarters in Odessa.

Catline Winch Affords Drilling Crew Greater Safety

Left to right, top: Bob Prather, derrick man; R. H. Uhl, tool pusher; W. G. Prather, driller; Jack Dudley, engineman. Bottom: P. E. Dixon, floor man; Charley Prather, floor man; W. H. Eason, representative W-K-M Co.

The illustration shows the W-K-M catline winch used by the Herndon Drilling Co. on its No. 1 Henry F. Allen, Section 35-24-3w, Garfield County, Oklahoma. The winch is designed to take the place of the catrope. It is driven by sprocket and chain from the line shaft, and has two clutches, one of which engages the drum shaft, while the other, a planetary type of clutch, engages the drum, and the winch picks up any load which can be lifted by the size of line used.

A suitable brake is furnished with which the load may be stopped and suspended at any desired point.

Men Well Known in the Equipmet Field

As a result of increased activity in its Diesel and gas engine lines, the Worthington Pump & Machinery Corp. has created the Eastern Oil Power Division un-

RAY L. HOWES

der the field management of Ray L. Howes, with headquarters at its New York office, 2 Park Avenue.

Mr. Howes was educated at Iowa State College. For 22 years he was connected with the Diesel sales division of the Fairbanks-Morse Co.

Through Worthington district offices in Boston, New York, Philadelphia, Washington and Atlanta, Mr. Howes will have supervision of Diesel engine sales in these territories.

Grade "S" Rod Developed to Combat Embrittlement

Grade "S" sucker rods, developed by the Oil Well Supply Co. to overcome the problem of embrittlement presented by hydrogen sulphide wells, are fortified against this type of attack by certain chemical properties and by the company's method of heat treatment.

Hydrogen sulphide in the presence of water causes corrosive embrittlement of straight carbon and alloy steels, and this action contributes to their fatigue and failure.

Grade "S" metal used in the manufacture of the new Oilwell sucker rod is a low metalloid steel. This is described as practically pure clean iron, with slag inclusions eliminated, alloyed with nickel and molybdenum. The rods are upset by a special process, after which they are fully heat-treated; that is, normalized, quenched and drawn over their entire length in the company's heat-treating furnace and auxiliary equipment. In this way, it is said, the desired balance between strength and ductility is attained, with the required resistance to sulphide embrittlement and corrosion fatigue.

The company's engineers and metallurgists recommend Grade "S" sucker rods for sulphide wells in installations where the rod stresses are as high as 30,000 pounds per square inch.

The performance of Grade "S" rods in the Seminole, Oklahoma; Eldorado, Eastboro, Oil Hill, Leon, Valley Center, Voshell, Kansas; Big Spring, Borger and Crane County, Texas, and other corrosive fields, is said to have proved their value.

Michigan Fields

(Continued from Page 104)

berg, SW NW SE Section 20-10n-6e, Birth Run Township, Saginaw County; Hadley Oil & Gas Syndicate's No. 1 H. Halpin Estate, SE NE NE Section 36-7n-9e, Elba Township, Lapeer County, in southeastern Michigan and Marine City Gas & Oil Co.'s No. 1 DeSnyder, SE NW SW Section 24-4n-16e, China Township, St. Clair County, southeastern Michigan.

A rig is under construction on the Siegel farm near Farwell in Surrey Township, Clare County, for E. E. Vincent, of Detroit. An old test started more than five years ago on the N. Garner farm, NE SE Section 10, North Shade Township, Gratiot County, but abandoned at about 900 feet, may be deepened as a result of the Crystal well. It was originally drilled by the Fish Creek Oil Syndicate of Carson City.

Oklahoma Fields

(Continued from Page 103)

Bromide lime 3,920 feet, first sand 4,010 feet, second sand 4,060 feet, McLish lime 4,138 feet, total depth.

Magnolia Petroleum Co. has staked location for its No. 2 Simpson, SW SE NE Section 29-2-7, Fitts Pool in Pontotoc County, a twin to well No. 1 Simpson, a shallow gasser. Ed. Moore and others had cellar and pits dug for No. 3 Showers, NE SW NW Section 29-2-7, and same operators had made location for No. 5 Craddock in the NE NW SW Section 29-2-7, Fitts Pool.

Northwest of the Fitts Pool in Pontotoc County, Mudge Oil & Gas Co. had abandoned its No. 1 Clampitt, SW NW NW Section 10-2-6, at 915 feet. Arbuckle lime was topped at 902 feet.

Other Pontotoc County tests started during the past week were: Mayfield and others' No. 1 Smith, SW cor. Section 19-5-5, an old well in the Bebee Pool being deepened at 2,600 feet. Premier Investment Co.'s No. 3 Layne in the NW SW NW Section 30-5-5, Bebee Pool, had been deepened from 2,262 feet to Simpson dolomite 2,566-2,578 feet, total depth, which produced on the swab 248 bbls. of oil and 175 bbls. of water in 16 hours after a 140-quart shot of nitro. It was being tested further.

Garvin County Test Abandoned

National Producing Co.'s wildcat, No. 1 Littrell, NE cor. Section 31-2-3w, about 6 miles northwest of the Tatum Pool in Garvin County, was abandoned at 1,528 feet. A show of gas was reported in this test at 1,260 to 1,265 feet.

SOUTHWESTERN OKLAHOMA

The Altus area of southwestern Oklahoma was rejuvenated the past week when two tests, one a wildcat, came in on production. Selby Oil Co.'s No. 1 Cobb, NW SW NE Section 21-1-20w, Jackson County, was flowing from 1 to 1½ bbls. of oil per hour of 42 gravity oil from the Granite Wash at 1,138-1,144 feet, total depth. This producer is located about 2½ miles south of the Gypsy Oil Co.'s No. 1 Circle, NW cor. Section 11-1n-20w, an offset to the discovery well for the area. The No. 1 Circle was cored from 1,567-70 feet and when the core was removed from the hole the well flowed, cleaning itself in one head. It was being connected up for a production test.

Petroleum Products Co. had staked location for its No. 2 Cole, SE SW SE Section 34-2-20w, Altus Pool, in Jackson County, and the machine was being rigged up.

Stephens-Comanche Counties

Louis Sikes' No. 8 Franklin, NE SE SE Section 18-1s-8w, West Duncan Pool in Stephens County, was completed in sand 1,864-73 feet, for 13 bbls. daily on the pump. Total depth was 1,880 feet.

Western Oil Co.'s No. 2-B Brown, NE SW NE Section 30-1s-8w, West Duncan Pool in Stephens County, encountered salt water in sand at 2,918-26 feet, total depth, and it was abandoned.

New operations started in Stephens County the past week were as follows: Louis Sikes' No. 7 Furst, SW SE SW NW Section 16-1s-8w, drilling 750 feet; Canadian Drilling Co.'s No. 1 Woods, SW SE NW Section 12-3s-6w, shut down at 240 feet; Canadian Drilling Co.'s No. 2 Woods, CSL SE SE NW Section 12-2s-6w, sand 400-08 feet, show gas, sand 633-42 feet, show oil, drilling at 642 feet.

Westheimer & Daube had made location in SE cor. Section 13-2-10w, Stephens County, for their No. 2 Cox.

Carter County

S. T. Urice's No. 1 Blanton, NE NW NW NE Section 19-3s-2w, Carter County, found sand at 146-47 feet, total depth, which produced 1 bbl. of oil a day on the pump, and it was completed. Same operator's No. 2 Blanton, CNL NW NW NE Section 19-3s-2w, was spudded and abandoned.

Don Leon Oil Co.'s No. 1 Majors, SE SW SE Section 22-2s-2w, Ed Cox Pool in Carter County, was completed in sand at 1,090-1,120 feet for 10 bbls. of oil daily. Oil tested 29 gravity and total depth was 1,135 feet.

East of the Tatums Pool, Evans and Groves' No. 1 Eaves, SW SE SW Section 28-1s-2w, was abandoned at 700 feet, total depth.

New operations in Carter County follow: Cox & Hamon's No. 2 fee, NW NE SE Section 17-2s-2w, rig; Skelly Oil Co.'s No. 1 Pierce "C," NW SE NE Section 17-2s-2w, location; S. T. Urice's No. 3 Blanton, NE NW NW NE Section 19-3s-2w, drilling 106 feet.

Marshall County

In the Enos Pool in Marshall County, Headington and others' No. 1 Snell, NE SE Section 36-7s-5, had been completed for 7 bbls. daily on the pump, production coming from sand logged at 460-80 feet, total depth.

Four new operations were started in Marshall County Pool during the past week: Leville Coal Co.'s No. 6 Eppler, NE cor. Section 36-7s-5, was drilling at 478 feet. Fleming & Kimbell's No. 5 Snell, CWL SW NW NW Section 31-7s-6, had 6-inch casing cemented at 480 feet. Same operators' No. 6 Snell, NW SW NW Section 31-7s-6, was a location, and Jess Cook and others were drilling at 75 feet in their wildcat, No. 1 May in the NE NW Section 12-8s-5.

Murray County Wildcat Dry

George Manahan and others' No. 1 Ward, Murray County wildcat test in the NE SE NW Section 18-1s-3, was a dry hole at 2,110 feet, total depth. Bromide lime was topped at 1,166 feet; Bromide sand logged at 1,311-76 feet showed oil and water and McLish sand 2,058-2,110 feet carried water.

CLASSIFIED ADVERTISING

Royalties—Production

BETTER CLASS
MONTHLY PAYING ROYALTIES
Quoted Dealers Exclusively.
W. E. COOK
Suite 812, Palace Bldg., Tulsa, Okla.

PRODUCING OIL ROYALTIES
for dealers.
H. P. BOWEN
842 Kennedy Bldg., Tulsa, Okla.

Producing Oil Royalties
at wholesale.
ROBERT L. KINKAID, INC.
Petroleum Bldg., Oklahoma City, Okla.

Income Producing Royalties
Mid-Continent Field
Harry A. George
427 Perrine Bldg., Oklahoma City, Okla.

DEALERS IN ODD LOTS
EAST TEXAS AND VAN POOL
PRODUCING OIL ROYALTIES.
We Buy and Sell.
E. T. MARION REAL ESTATE CO.
401-2 Slaughter Bldg.,
Dallas, Texas.

Van—East Texas—Louisiana Royalties
Bought—Sold.
67 Wall St., Suite 1510, New York City.

PRODUCING OIL ROYALTY paying monthly income in half acres and upwards at reasonable prices. Federal listed. S. J. Jewell, P. O. Box 35, Tulsa, Okla.

J. A. WOLF AND COMPANY
105 West Adams Street
Chicago, Illinois
Dealers in Oil Royalties since 1918.

VAN POOL — EAST TEXAS
Bought — Sold — Wholesale.
W. R. Brown & Co., Inc.
14 Prospect St., East Orange, N. J.

PERMIAN BASIN oil structures are under development in a big way. All dealers in under-the-drill royalties, please get our new offering. It will interest you. W. J. Dobbs, 632 Wilson Bldg., Dallas, Tex.

PRODUCING OIL ROYALTIES
Bought (Wholesale) Sold
Inquiries invited from Oil Companies, Bankers, Dealers.
M-K OIL COMPANY, INC.
20 Broad St. New York.

ROYALTY and Leases, Wheeler and Gray Counties, Texas. For quick direct deals get in touch with
E. B. REEVES,
Lock Box 475, McLean, Texas.

Own and Offer for Sale
PENNA. OIL AND GAS LEASES
Producing Royalties and Working Interests in the best producing areas.
ROBERT E. LEYENDECKER
341 Madison Avenue, New York, N. Y.

PRODUCING OIL ROYALTIES
(ALL FIELDS)
Bought, Sold and Quoted.
HENRY L. BAKER CO.,
207 Van Nuys Bldg.,
Los Angeles, Calif.
Telephone Trinity 7391.

HIGH GRADE producing oil and gas royalties offered to dealers. Billie Smallwood, P. O. Box 2261, Tulsa, Okla.

Royalties—Production

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

GULF COAST ROYALTIES
Bought and Sold.
Producing and non-producing royalties in salt dome fields of Texas and La.
ZENI OIL COMPANY
412 Esperson Bldg., Preston 4420,
Houston, Texas.

OIL REPORT SERVICE
Specimen Copies and Particulars on Request.
OIL INFORMATION BUREAU
501-04 PETROLEUM BUILDING
OKLAHOMA CITY. OKLAHOMA.

Registered Royalties and Non-Registered Royalties available to Dealers only.

CHESTER IMES
First National Building,
Oklahoma City, Okla.

BROKERS — SALESMEN
Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. Complete set of Forms and Reports for filing with Securities and Exchange Commission accompanies every order. Inquiries invited.
B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo.

Income Producing Royalties
For
DEALERS AND TRUSTS.
PETROLEUM PURCHASING CORP.
Ramsey Tower, Oklahoma City, Okla.

CHASE COUNTY, KANSAS, ROYALTY FOR SALE. Sec. 25, Twp. 22, South, Range 9 East 12 R.A. under East Half, N.W. Quarter 6 R.A. under Northeast Quarter. 67 WALL ST., SUITE 1510, NEW YORK CITY.

POTENTIAL ROYALTIES
Keep a few low cost Texas Royalties selected on geology in your portfolio. A certain percentage will produce oil. A profit of 100 times the original investment is not too much to expect. Write us.
J. F. MARION OIL COMPANY
MAGNOLIA BUILDING
DALLAS, TEXAS.

Royalties—Production

I OWN and will sell the best producing royalties in Van, East Texas and Wheeler County, Texas, Fields. I own 500 acres full one-eighth land owners' royalty participating in rentals under major companies. Heavy development under way. $4.00 an acre, rentals paying 6¼% interest in advance. Will buy royalties in Texas and Oklahoma in any amounts. P. R. KNICKERBOCKER, 3237 Westminster St., Dallas, Texas.

ROYALTIES producing and non-producing in Kansas, Oklahoma and Texas. James R. Haynes, Grantville, Kansas.

CALIFORNIA OIL ROYALTIES
Signal Hill-Huntington Beach-Kettleman
RICHARDS & COMPANY
650 So. Spring St., Los Angeles, Calif.

Situations Wanted

SALESMAN AND CHEMIST
Graduate Chemist, seven years' experience refining, construction and sales. Best References. Address Box G-611, The Oil and Gas Journal, Tulsa, Okla.

CHEM. ENGR., 8 yrs. experience in oil industry, now employed, desires change. Expert in fractionation and related processes. Capable of directing development work. Address Box G-640, The Oil and Gas Journal, Tulsa, Okla.

ENGINEER — 12 years' experience with Major Company in valuations, design, construction and operation of refineries, pipe lines, gas plants, etc. Desires change in connection. Would consider sales. Address Box G-652, The Oil and Gas Journal, Tulsa, Okla.

Help Wanted

WE BELIEVE OUR METHOD to be the quickest and surest for locating new oil and gas pools. A representative wanted in each state. The Mid-West Development Company, 423 Cuyahoga Bldg., Cleveland, Ohio.

WANTED — Gas Measurement Engineer to train as field service engineer for manufacturer of general line of automatic controlling and recording instruments. Young, single man, graduate of engineering school desired and highest character references required. Write stating age, education, experience and salary desired. Address Box G-650, The Oil and Gas Journal, Tulsa, Okla.

Engineering Service

SURVEYS, Maps, Geologists, auditing income tax reports. Supervise drilling operations, construction tanks derricks anywhere. Rates reasonable. Petroleum Engineering & Auditing Co., Box 187, Oklahoma City, Oklahoma.

Financing

JAMES E. MILLER CO., 207½ E. Third St., Tulsa, Okla., will co-operate with responsible parties seeking aid in financing projects of higher order.

PROSPECTUSES prepared and deals shaped up for registration or exemption under Federal Security Act. Fee basis. John Morris, Seventh Floor, 1237 Market St., Philadelphia, Pa.